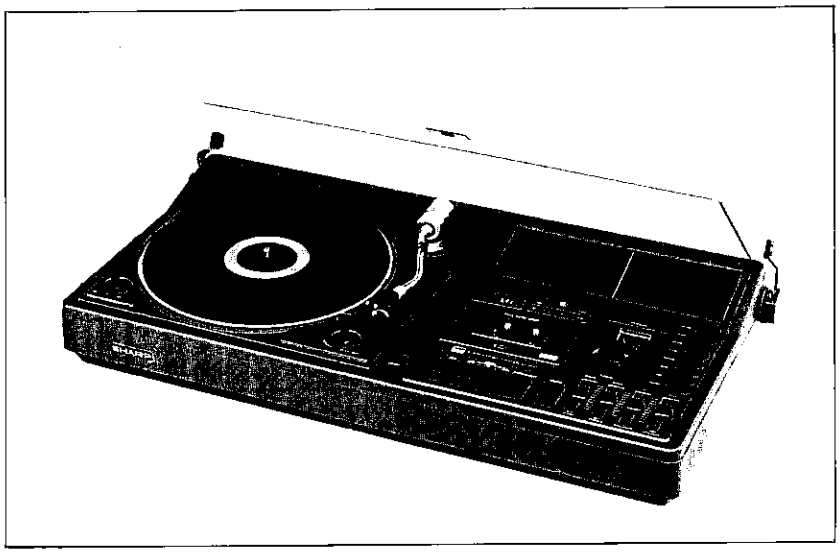
SHARP Service Manual

SG-320H
SG-320HB



APSS
Auto Program Search System

Receiver with Cassette Tape-Deck and Record Player

MODEL SG-320H SG-320HB

"In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used"

SPECIFICATIONS

GENERAL

Circuit:	LW/MW/SW/FM (FM-STEREO) 4-band stereo receiver with 4-track cassette tape-deck and record-player.
Semiconductors:	6-IC (Integrated Circuit) 25-transistor 1-FET 39-diode
Power source:	110/220/240 V, 50 Hz
Dimensions:	771 mm (30-3/8") (W) x 164 mm (6-7/16") (H) x 380 mm (14-5/16") (D)
Weight:	13.7 kg (30 lbs)

AUDIO SECTION

Music power output:	2 x 27 W / 4 ohms Both channels drive
Continuous power output:	2 x 15 W / 4 ohms Both channels drive
Frequency response:	50 Hz – 35,000 Hz (–3 dB)
Output impedance:	4 ohms
Input sensitivity and input impedance:	MIC: 1mV, 10K ohms AUX: 300 mV, 50K ohms

FM SECTION

Frequency coverage:	87.6 ~ 108 MHz
Quieting sensitivity:	2 μV (40 kHz deviation, S/N=30 dB)
Harmonic distortion:	1%
Stereo separation:	30 dB

AM SECTION

Frequency range:	LW:	150 ~ 370 kHz
	MW:	520 ~ 1620 kHz
	SW:	5.95 ~ 18 MHz
Usable sensitivity	LW:	250 μV/m
	MW:	300 μV/m
	SW:	50 μV

TAPE DECK SECTION

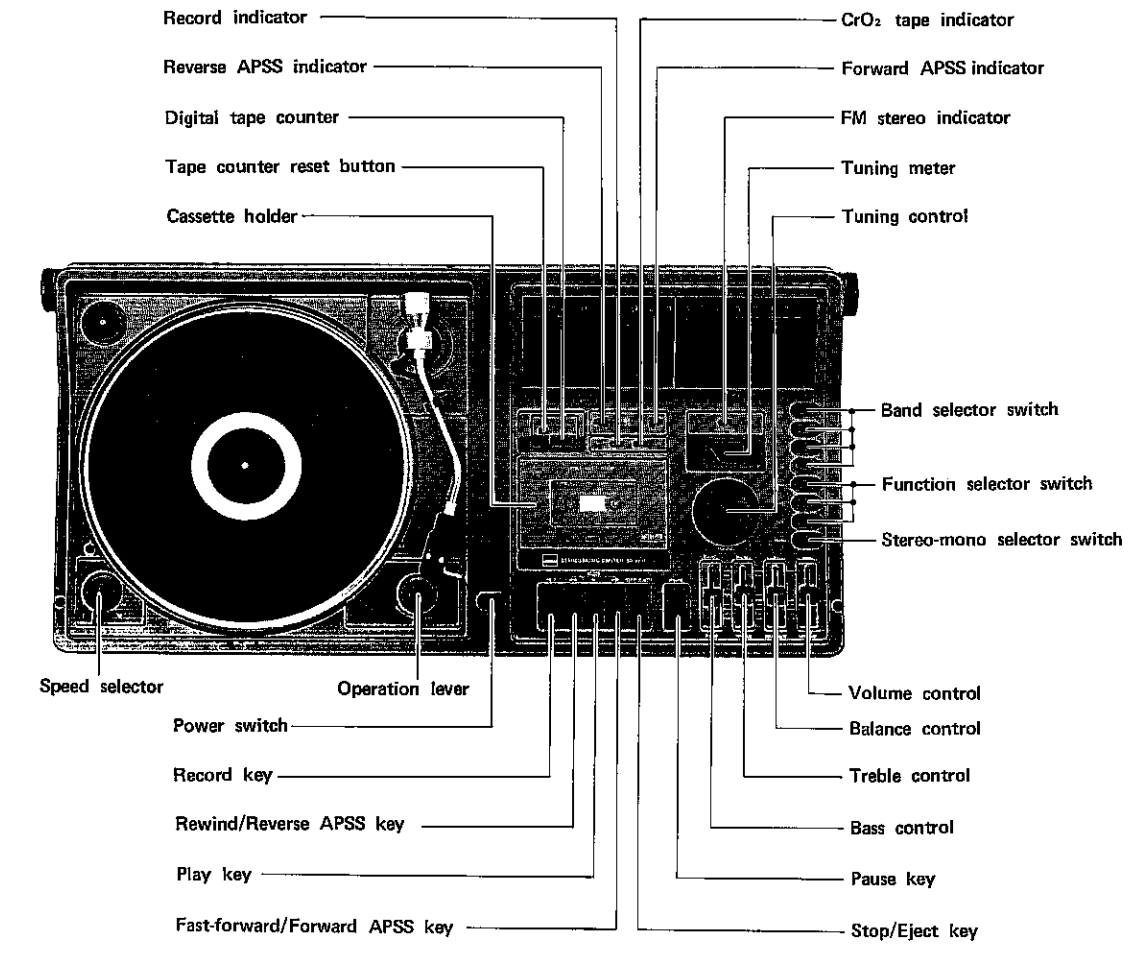
Type:	4-track 2-channel stereo cassette tape deck
Tape:	Philips standard compact cassette tape
Tape speed:	4.8 cm/sec
Wow & flutter:	0.35 % (DIN standard)
Frequency response:	50 Hz ~ 15 kHz (CrO_2 tape) 50 Hz ~ 10 kHz (Normal tape)

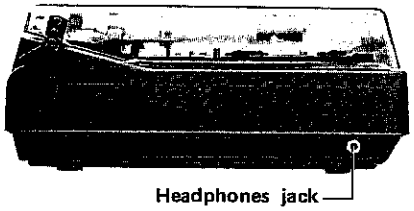
RECORD PLAYER SECTION

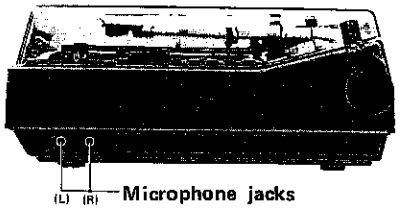
Type:	Rim driven
Speed:	33-1/3, 45 r.p.m.
Tonearm:	Static balancing
Cartridge:	Ceramic with Sapphire stylus
Motor:	AC110 V, 50 Hz 2-pole induction

SHARP CORPORATION OSAKA, JAPAN

NAMES OF PARTS







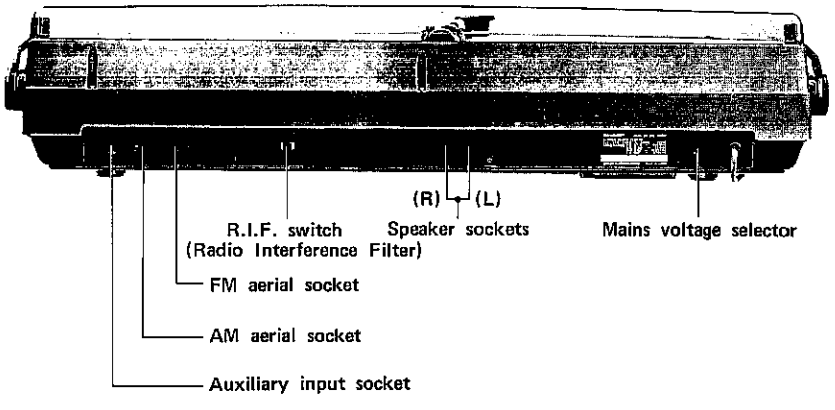


Figure 1

DISASSEMBLY

* Disconnect all leads connected to the back of the unit.
* Refer to Figure 2.

[A] DUST COVER REMOVAL

1. Fully open the dust cover.
2. Remove two (2) hings by moving the dust cover to the direction of arrow mark.

[B] TOP CABINET REMOVAL

1. Remove the dust cover as described in dust cover removal.
2. Remove seven (7) knobs (TUNING, VOLUME, BALANCE, BASS, TREBLE, Operation and Speed selector).
3. Remove six (6) screws retaining the top cabinet.
4. Set the pick-up to center position of the turntable.
5. Gently lift up the top cabinet.

[C] PLAYER BOARD REMOVAL

1. Remove the top cabinet as described in top cabinet removal.
2. Lift up the player board, and disconnect two (2) sockets (CNS-3, CNS-4).

[D] TAPE DECK REMOVAL

1. Remove the top cabinet as described in top cabinet removal.
2. Disconnect two (2) sockets (CNS-1, CNS-2) connected to the power P.W. Board and Record P.W. Board.
3. Remove six (6) screws retaining the tape deck.

[E] BOTTOM COVER REMOVAL

1. Remove two (2) screws retaining the bottom cover.

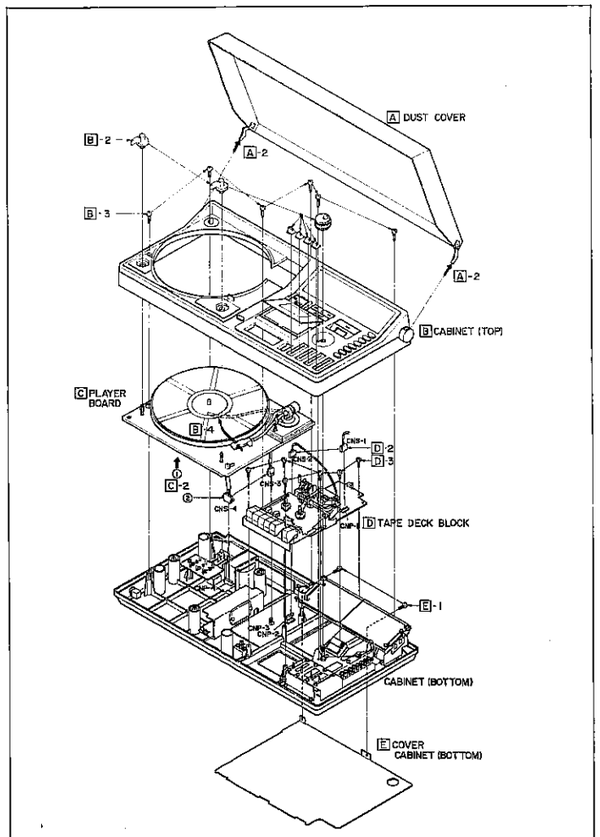


Figure 2

REPLACEMENT OF THE FUSE

* Replace the fuse with a new one in the following way.

1. Pull the power cord plug out of an wall outlet.
2. Remove the turntable.
3. Remove the screw (A) retaining the fuse cover and turn the fuse cover in the arrowed direction.
4. Remove the fuse through its pull-out hole by your fingers or pliers and replace it with a new one.
5. After the replacement, reset the cover to its original place and retighten the screw (A).

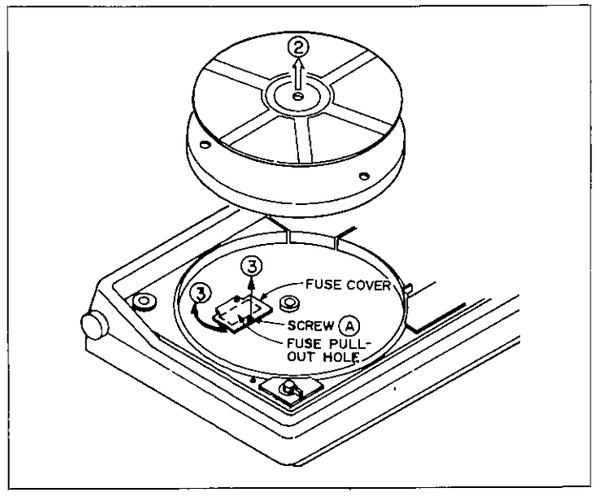


Figure 3

OPERATION ON MAINS

■ Before operating the unit on mains, check the pre-set voltage. If the voltage is different from your local voltage, adjust the voltage as follows: Rotate the plug of the voltage selector by using a screwdriver so that your local voltage number can be seen.
(Refer to Figure 4)

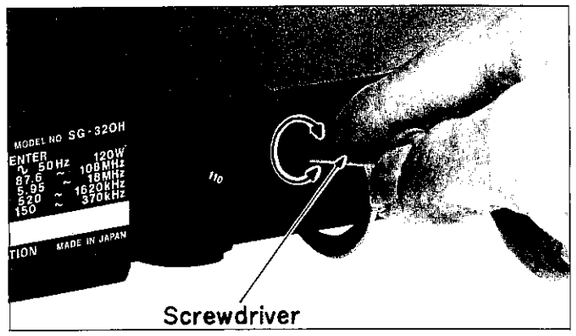


Figure 4

DIAL CORD STRINGING

(Refer to Figure 5)

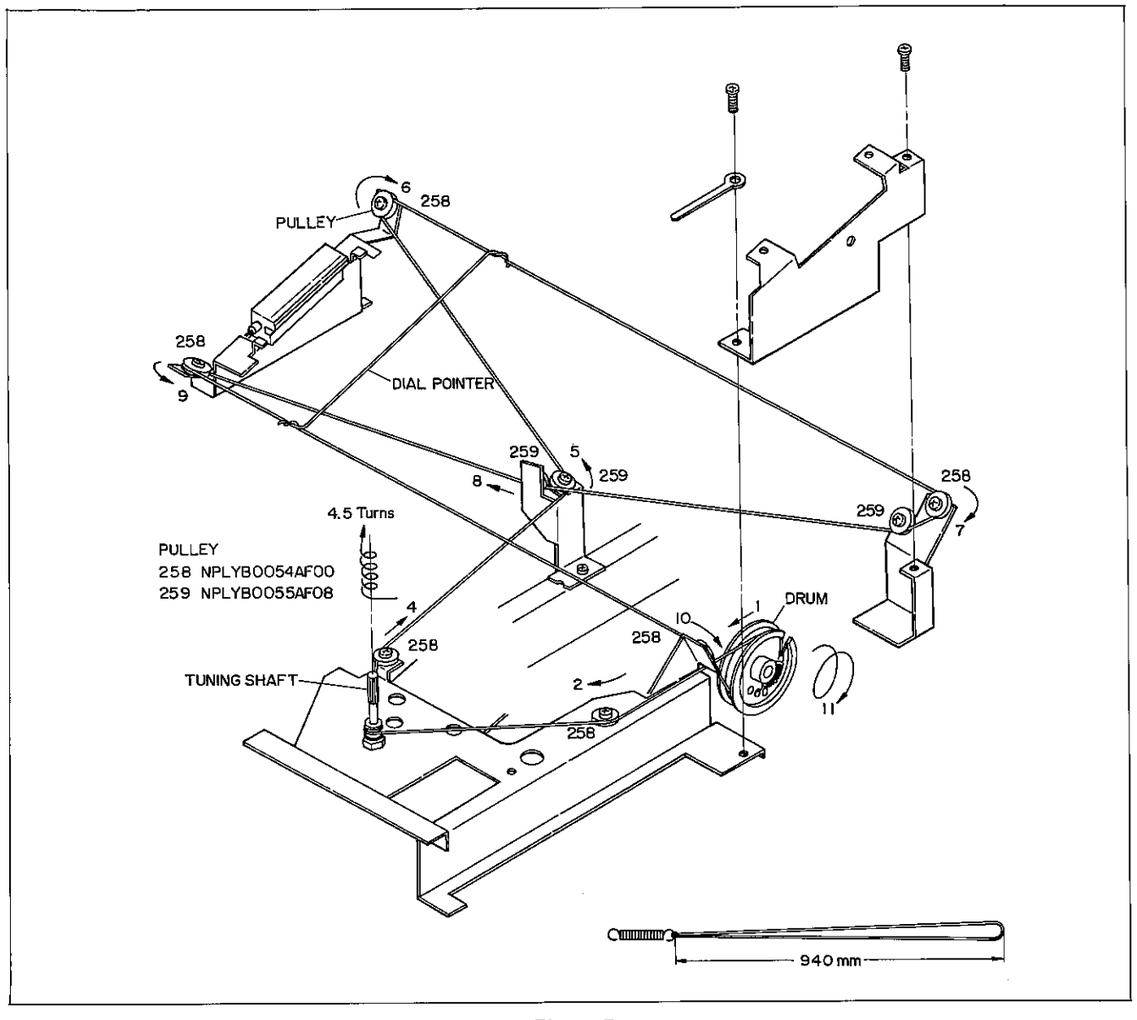


Figure 5

DESCRIPTION OF APSS

APSS is an abbreviation of Auto Program Search System uniquely developed by SHARP, which can automatically detect the starting position of each program.
With the APSS system, if the fast forward key (or rewind key) is depressed during playback mode, the tape is fast forwarded (or rewound) to the starting position of the next (or present) program and then the fast forward (or rewind) key is automatically released to make the mechanism be put in playback mode. While the APSS is in operation, the tape is forwarded (or rewound) 15 to 35 times as fast as in playback mode.

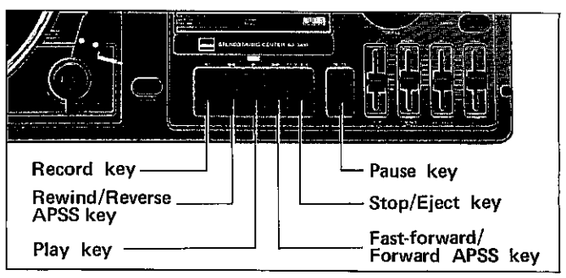


Figure 6

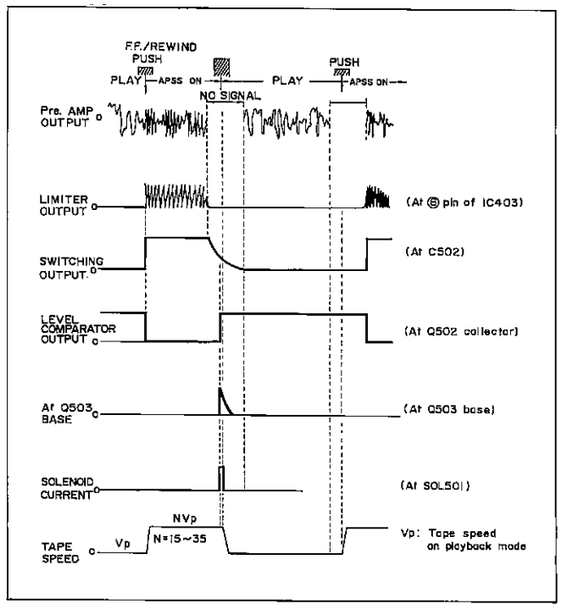


Figure 7

OUTLINE OF APSS

■ **MIXING AND LIMITER AMP**
This amplifier is composed of IC403 and serves to mix equalizer amplifier outputs of right and left channels. Moreover it servers to amplify the output of mixer amplifier to the level where the APSS starts to operation.

■ **SWITCHING CIRCUIT**
This switching circuit is composed of Q501. Switching of the Q501 enables C502 be charged.

■ **TIME CONSTANT CIRCUIT**
This time constant circuit is composed of R503, C502.

■ **LEVEL COMPARISON CIRCUIT**
This level comparator is made of Q502. When the set gets in APSS operation, there appears output of the limiter amplifier to turn on Q501 so that the capacitor C502 be charged by the time constant circuit C502 and R501, thus resulting in the Q502 being turned on. When no output is then produced from the limiter amplifier with the tape being at a non-signal recorded part, the Q501 is turned off and the C502 once charged is discharged by the time constant circuit C502 and R503 so that the Q502 be turned off when its base potential reaches a certain reference voltage.

■ **SOLENOID CONTROLLED CIRCUIT**
This plunger controlled circuit is composed of Q503. When Q502 is switched over from on to off, C503 is charged resulting in that the Q503 be switched over from off to on. This, the solenoid operates to release the locked FF (or REW) key and put the set in playback mode again.

■ **TAPE SPEED**
If the FF (or REW) key is depressed with the set in playback mode, it is put into APSS mode. That is to say, the APSS indication lamp lights up and the tape is transported nearly as fast as in FF (or REW) mode, i.e. 15 to 35 times as fast as in normal playback mode. If the APSS mode is canceled by the function of plunger, the tape speed is reduced to the normal playback speed.

FUNCTION OF APSS

The following are detailed functions of the system. During playback mode, signals amplified by IC401 and IC402 enter the mixer/limiter amplifier (IC403). The signals from IC401 and IC402 are mixed, amplified and limited by IC403 and the output of IC403 makes Q501 be switched over to charge C502.

The discharge potential of C502 is level compared by the transistor Q502 and current runs in the base of Q503. At this time, current runs in the plunger to make it be attracted and the mechanism is changed to playback mode from APSS mode.

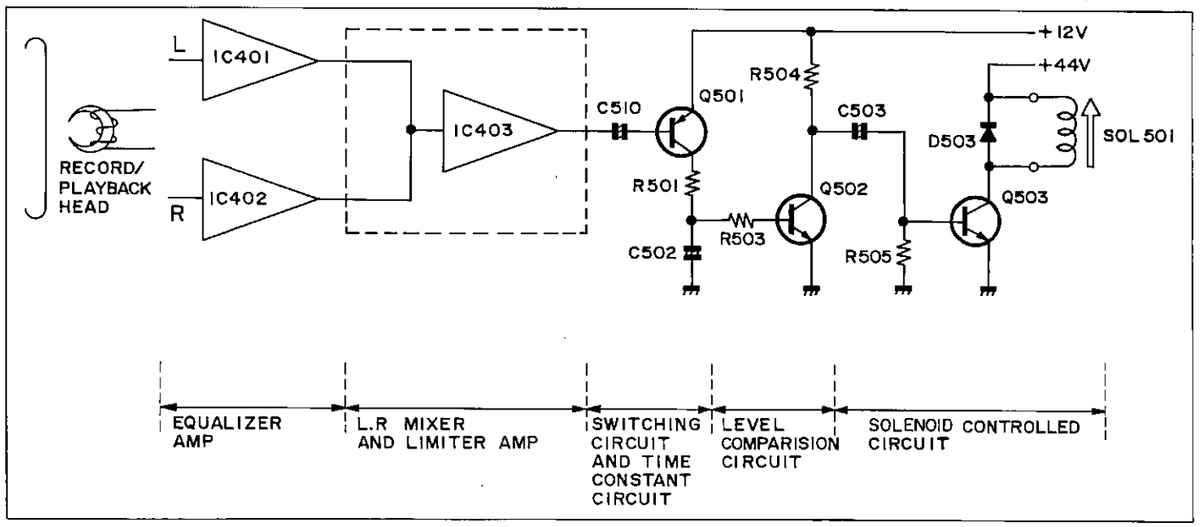


Figure 8

Note 1

When such tapes as described below are used, the APSS may not function normally, causing tapes to stop in the middle of a program or to overrun the non-signal segment between programs.

* Tapes which contain intermittent-sound programs such as conversation, lectures and news, etc.
* Tapes which contain pianissimo-featured classical music, solo-performance modern jazz or music, that has much muting.
* Tapes which have low recording level through out the programs.
* Tapes which are provided with too short interval between programs (less than 3 seconds).
* Tapes which include outstanding mixed noise or hum between programs.

Note 2

Note that the APSS cannot function even if the FF (or REW) key is pressed while the tape is being at the blank area between programs.

Note 3

① When the FORWARD APSS is operated within about 10 seconds (as measured in playback mode) after termination of a program.
② When the REWIND APSS is operated within 10 seconds after the start of a program. In the above-mentioned cases ① and ② the part adjacent to the concerned program may be also fast forwarded (or rewound) as shown in Figure 9.

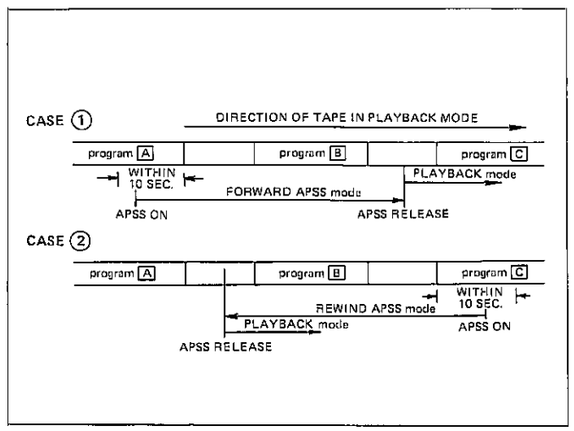


Figure 9

FUNCTION OF FULL AUTO STOP SYSTEM

This unit employs a system in which the Hall IC (IC501) detects a variation of magnetic field caused by the rotation of a magnet mounted on the counter shaft. While the magnet on the counter shaft rotates (in playback, record, fast forward and rewind modes), the Hall IC (IC501) is turned on and off alternately to produce pulses at its pin ③ and the pulses thus produced by the Hall IC (IC501) are rectified by the diode (D508) to charge a capacitor (C506) negatively.

As a result, the potential at the base of transister (Q504) reaches approx. −1.0 V, resulting in no operation of multivibrator consisting of transistors (Q504 and Q505).

On the other hand, when the rotation of magnet on the counter shaft is stopped (i.e. when the tape reaches its end in playback, record, fast forward and rewind modes), the Hall IC (IC501) is kept turned on (or off) continuously to produce no pulses so that the capacitor (C506) be stopped to be charged negatively.

This allows a current to flow through resistor (R510), causing capacitor (C506) to be charged positively. As a result, the potential at the base of transistor (Q504) exceeds 1.5 V, which actuates the multivibrator consisting of transistors (Q504 and Q505) to turn them on and off alternately and repeatedly. When Q504 is turned on, Q503 is turned on to allow a current to flow into solenoid (SOL 501).

As a result, the core of solenoid is attracted to put the mechanism in the stop mode. When the tape reaches its end in the APSS (Auto Program Search System) mode, the APSS key is unlocked due to the first attraction of solenoid and the play key is unlocked due to the second attraction, which put the mechanism in the stop mode.

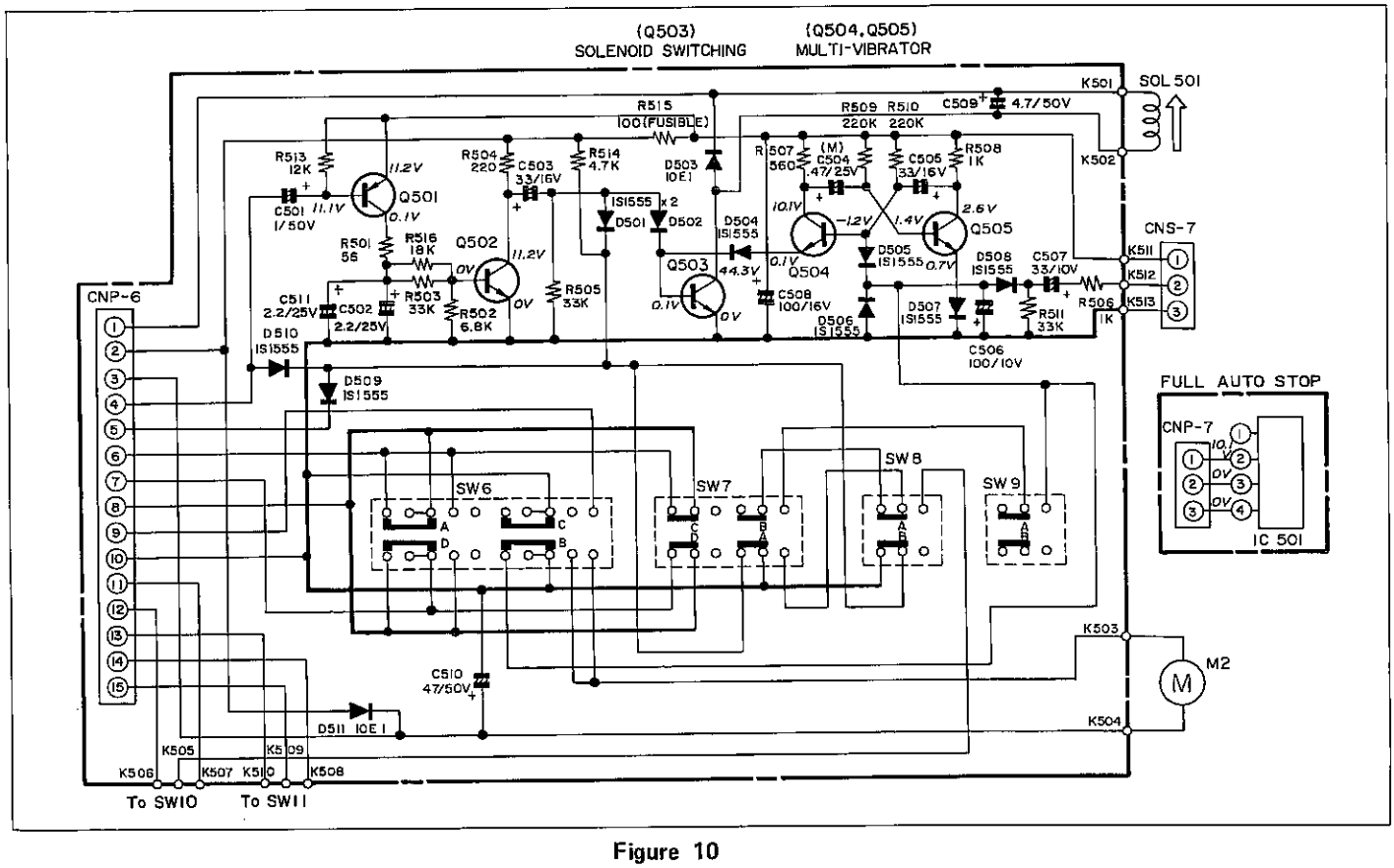


Figure 10

■ PAUSE MECHANISM ADJUSTMENT

(Refer to Figure 11)

1. Put the mechanism in playback mode and slowly depress the pause key. At the time, see that the take-up idler and take-up turntable come off from each other and also the capstan shaft and pressure roller come off from each other.
2. If it is found that the checking in the step 1 above is not satisfied, further adjust the adjustment point shown in Figure 11.

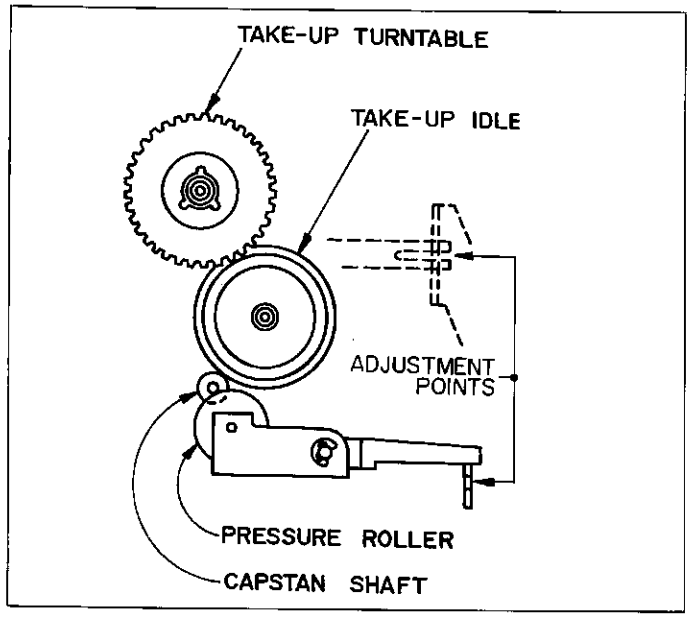


Figure 11

■ PRESSURE ROLLER PRESSURE ADJUSTMENT

(Refer to Figure 12)

1. With power supply turned on, push the point A with use of tension gauge to make the pressure roller apart from the capstan shaft. Then, gradually release the tension gauge and read its value when the pressure roller stops to rotate.
2. It is normal when the tension gauge reads 250 – 350 g. (8.8 – 12.3 oz). If the above value is not satisfied, change the setting position of pressure spring.

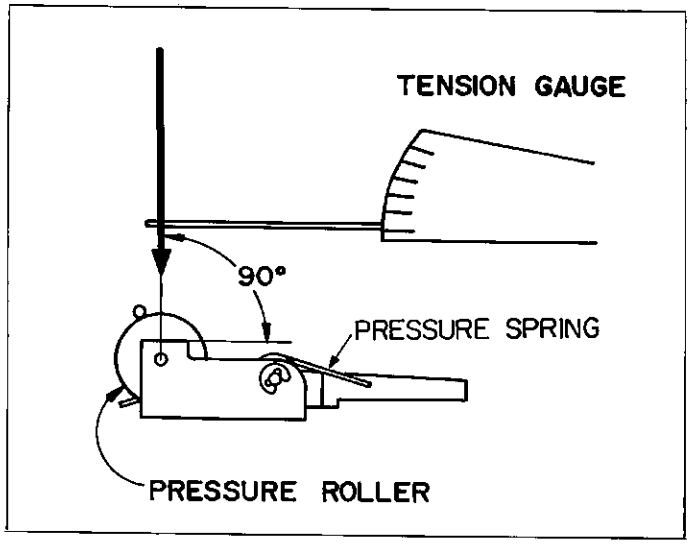


Figure 12

■ FLYWHEEL THRUST CLEARANCE ADJUSTMENT

(Refer to Figure 13)

Slowly tighten the screw for flywheel thrust clearance until the thrust clearance becomes 0 (zero) and loosen the screw by 1/5 ~ 2/5 turn from this point. Since screw's pitch is 0.5 mm, thrust clearance of about 0.1 ~ 0.2 mm is produced.

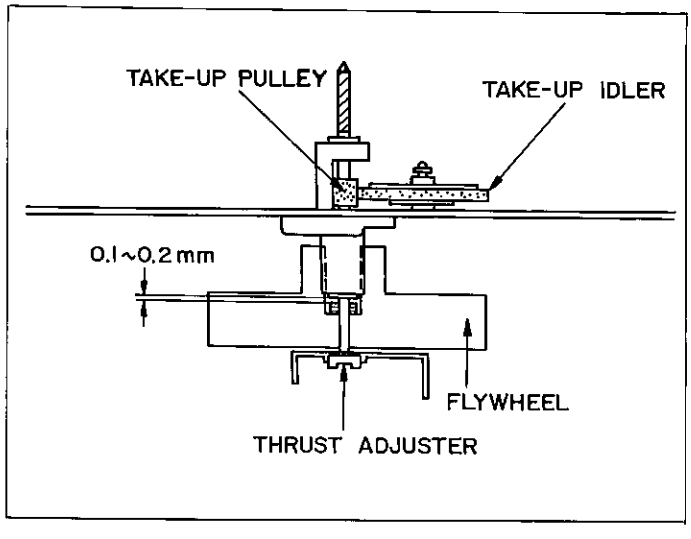


Figure 13

■ TORQUE CHECK

(Refer to Figure 14)

1. Set the torque measuring reel to the turntable (to the take-up side at playback or fast forward mode and to the supply side at rewind mode).
2. Then, rotate the reel in the same direction as for turntable and read the torque value when the pointer is stabilized.

Mode	Torque Value
Playback	35 – 60 gr. cm
Fast Forward	60 –100 gr. cm
Rewind	60 –100 gr. cm

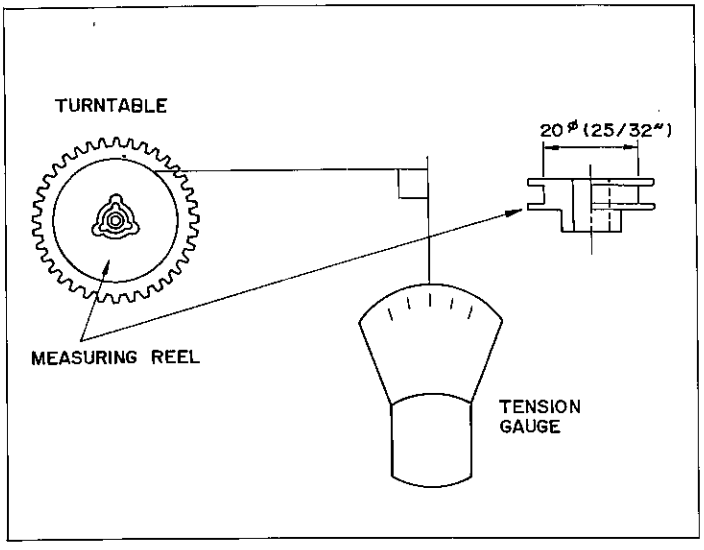


Figure 14

■ AUTO STOP SOLENOID SETTING POSITION ADJUSTMENT

(Refer to Figure 15)

Push the core of auto stop solenoid (SOL 501) and depress the play key.

At the time, adjust the screws retaining the auto stop solenoid so that the mechanism is changed to stop mode.

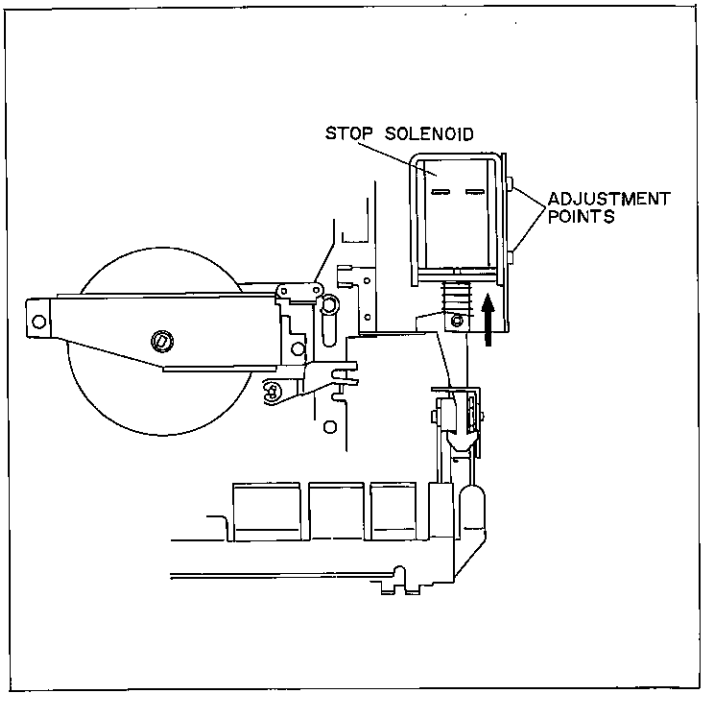


Figure 15

* Set the FUNCTION switch (SW1) to the TAPE position.

■ RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

(Refer to Figure 16)

1. Connect load resistor (4 ohm) to the EXT. SP. socket (SO301, SO302) and further connect the VTVM thereto.
2. Insert the test tape (MTT-114 : 10 kHz, −10 dB Recorded).
3. Set the BASS, TREBLE controls to the mechanical center position.
4. Place the unit in PLAYBACK mode.
5. Adjust the head azimuth adjusting screw so that the playback output voltage becomes maximum in both channels.

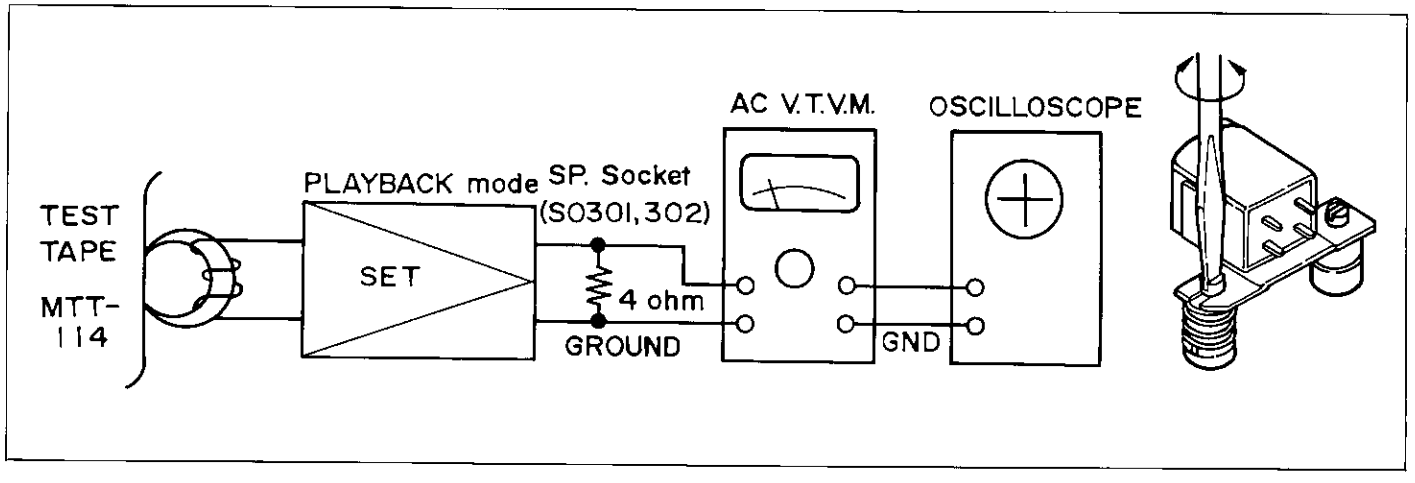


Figure 16

■ RECORD AMPLIFIER BIAS OSCILLATOR ADJUSTMENT

(Refer to Figures 17 and 25)

1. Connect the VTVM across the 100 ohm resistor (R401, R402) (TP401, 402 and Case of REC/PB switch SW2).
2. Set the auto tape selector switch (SW11) to the NORMAL position.
3. Place the unit in RECORD mode.
4. Adjust the semi-variable resistor (VR401, VR402) so that the VTVM readings becomes 40 mV.
   * Auto tape selector switch (SW11) : CrO_2 positon ⟶ 58 ± 4 mV.
5. Make sure the record oscillator bias frequency is 53.5 ± 4 kHz

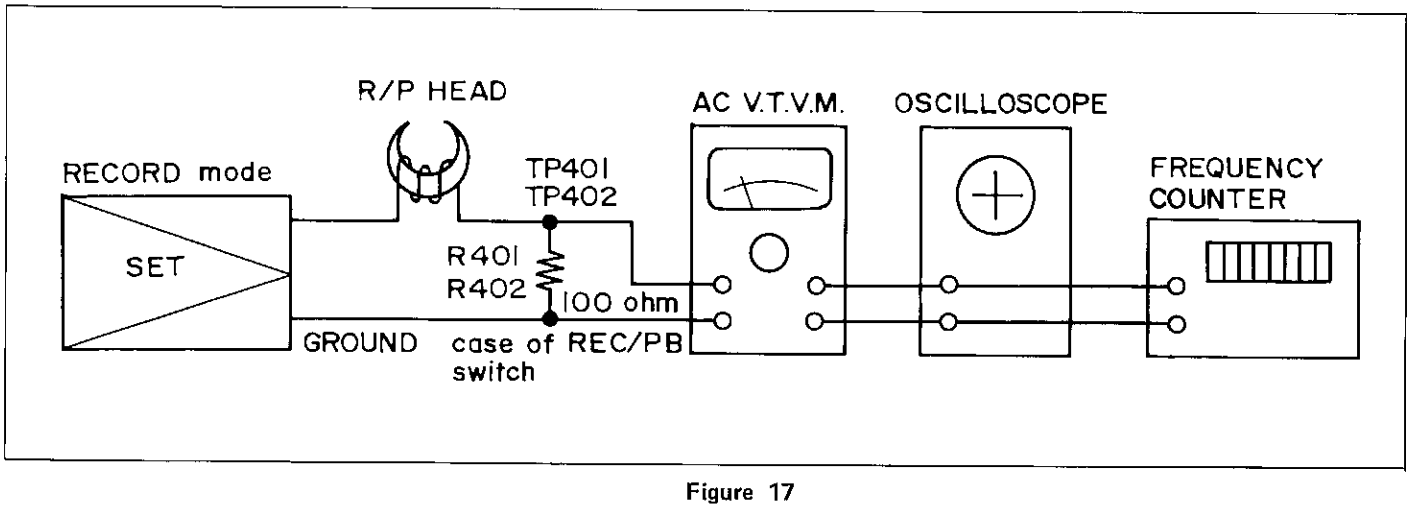


Figure 17

■ ERASE CURRENT CHECK

(Refer to Figures 18 and 25)

1. Connect the VTVM across the 1 ohm resistor (R452) (TP403 and Case of REC/PB switch SW2)
2. Set the auto tape selector switch (SW11) to the NORMAL position.
3. Place the unit in RECORD mode.
4. Make sure the erase current is 80 ± 20 mV.
   * Auto tape selector switch (SW11) : CrO_2 position ——→ 110 ± 20 mV

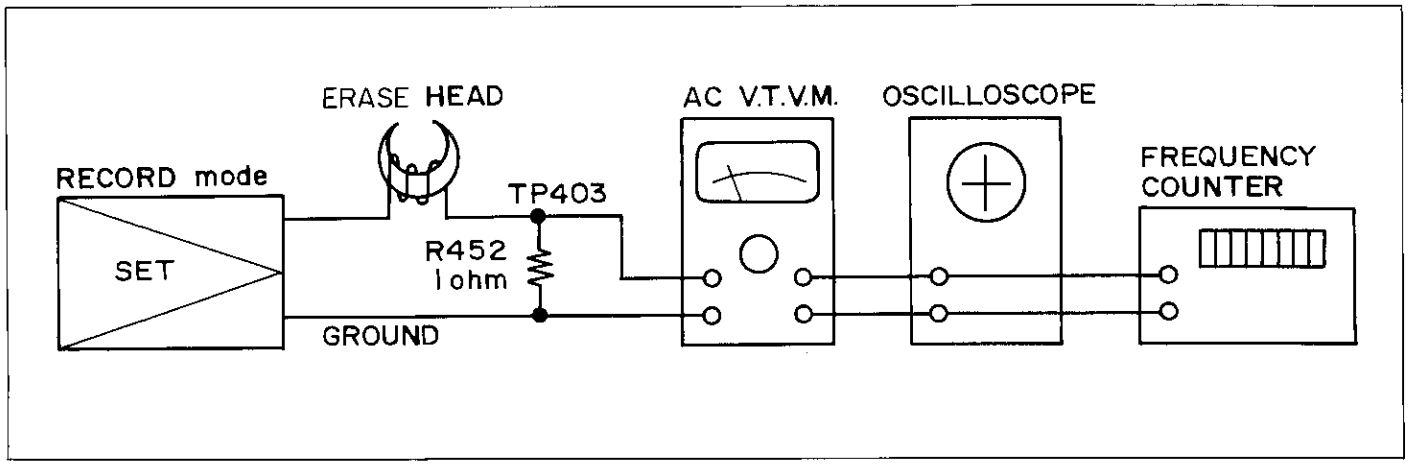


Figure 18

■ RECORD AND PLAYBACK AMPLIFIER SENSITIVITY CHECK

(Refer to Figure 19)

1. Connect load resistor (4 ohm) to the EXT. SP socket (SO301, SO302) and further connect the VTVM thereto.
2. Connect the C.R. oscillator to the AUX socket (SO103) and apply signals (1 kHz, −30 dB) to the unit.
3. Set the BASS/TREBLE/BALANCE controls to the mechanical center position.
4. Set the Function switch (SW1) to the AUX position and STEREO mode.
5. Reproduce the tape which has been recorded at the step 2 above.
6. If the indication of the VTVM is 2.1 ~ 4.3 V at that time, this means that the record and playback sensitivity is normal. (Normal tape used)

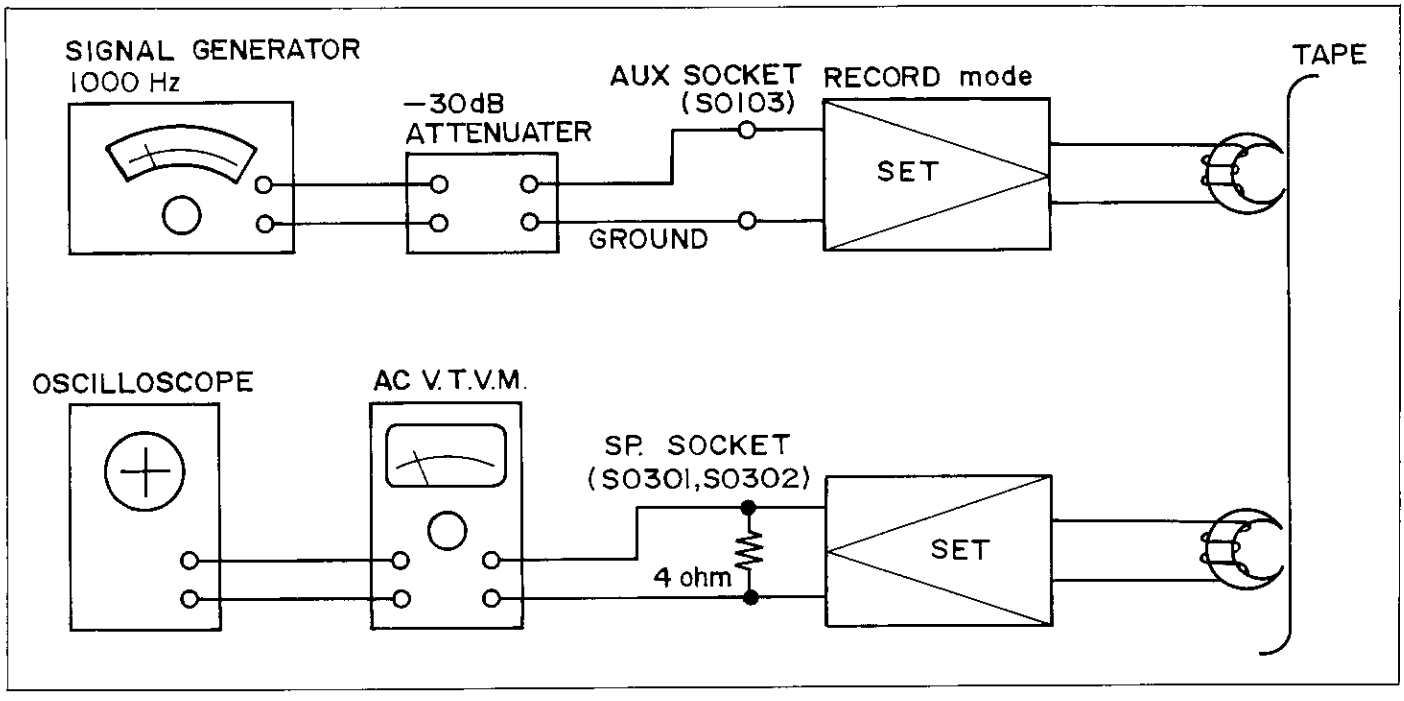


Figure 19

GENERAL ALIGNMENT INSTRUCTION

Alignment is an exacting procedure and should be undertaken only when necessary.
If alignment of AM and FM is required, either section may be done first.

The FM stereo section, however, should be done only if the FM monaural section is properly adjusted.

Note : Use a non-metallic alignment tool.

REQUIRED EQUIPMENT:

1. Signal generator with a frequency range of 140 kHz to 18.5 MHz: AM
2. Signal generator with a frequency range of 87.4 MHz to 109 MHz: FM
3. Signal generator with a frequency output of 10.7 MHz ± 0.5 MHz: FM
4. Vacuum tube voltmeter (AC-VTVM)
5. Sweep signal generator with a sweep range of at least 500 kHz and center frequency of 10.7 MHz with at least a 10.7 MHz marker. (Ext. Marker may be used.)
6. Oscilloscope with a wide range amplifier of approximately 100 kHz.
7. Test loops, a coil of any size wire, one turn or more.
8. FM stereo signal generator.
9. Audio signal generator with a frequency of 20 Hz to 100 kHz.
10. Frequency counter.

Notes: Allow the set at least five minutes to warm up before attempting alignment. During alignment keep the signal generator output at the lowest level that will maintain a usable output from the set, except for FM stereo signal generator. Take much care, lest the grounding of FM sweep signal generator input should make multipaths which made FM IF alignment incorrect. To avoid this the grounding lead may be connected through 0.01 – 0.04 MFD capacitor to the tuner chassis when sweep generator is connected to the tuner section.

Generator modulation (AM) 30%, 400Hz
Generator modulation (FM) 22.5kHz, 400Hz
Generator modulation . . . . . .CH.L. or CH.R.
(FM stereo) 11.25kHz, 1000Hz Mod.

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with FTZ rule Nr. 358 1970, please fix the low end of dial frequency (87.5 MHz) and the high end of dial frequency (107.9 MHz) on FM band, by adjusting oscillation coil (L105) and oscillation trimmer (TC3), respectively, as illustrated in Figure 25 (Page 16).

ALIGNMENT CHART

AM IF ALIGNMENT (Refer to Figures 20 and 25)

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		DIAL POINTER SETTING	SCOPE CONNECTION	ADJUSTMENT	REMARKS
			CONNECTION	FREQUENCY				
1	MW	IF	Thru 0.01μF to Q108 base as small as possible	455kHz (Sweep)	High end of Dial	Oscilloscope connected to R164	T103 T104 T105	Adjust for maximum output. Repeat 2 or 3 times.

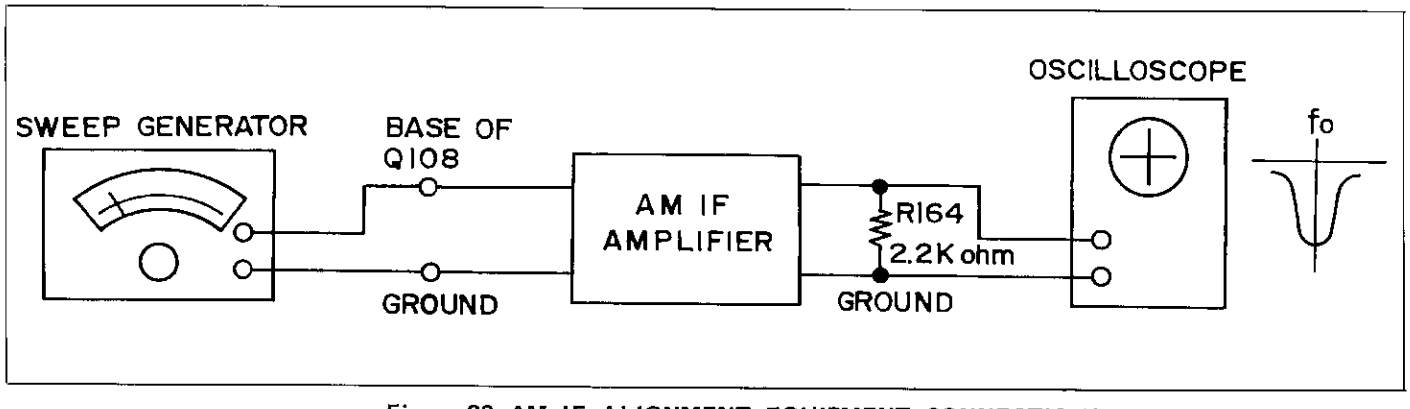


Figure 20 AM IF ALIGNMENT EQUIPMENT CONNECTIONS

AM RF ALIGNMENT (Refer to Figures 21 and 25)

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		DIAL POINTER SETTING	METER CONNECTION	ADJUSTMENT	REMARKS
			CONNECTION	FREQUENCY				
1	LW	Band Coverage	Radiated Signal as small as possible	145kHz	Low end of Dial	VTVM connected to R164	Oscillation coil L110	Same as above
2	LW		Radiated Signal as small as possible	385kHz	High end of Dial	Same as above	Oscillation Trimmer TC9	Same as above
3	LW	Tracking	Radiated Signal as small as possible	170kHz	170kHz	Same as above	Antenna coil L107 (Bobbin of LW)	Same as above
4	LW		Radiated Signal as small as possible	340kHz	340kHz	Same as above	Antenna Trimmer TC6	Same as above
5	MW	Band Coverage	Radiated Signal as small as possible	515kHz Modulated	Low end of Dial	Same as above	Oscillation coil L109	Same as above
6	MW		Radiated Signal as small as possible	1650kHz Modulated	High end of Dial	Same as above	Oscillation Trimmer TC8	Same as above
7	MW	Tracking	Radiated Signal as small as possible	600kHz	600kHz	Same as above	Antenna coil L107 (Bobbin of MW)	Same as above
8	MW		Radiated Signal as small as possible	1400kHz	1400kHz	Same as above	Antenna Trimmer TC5	Same as above
9	SW	Band Coverage	Thru 10PF to AM EXT ANT. as small as possible	5.7MHz	Low end of Dial	Same as above	Oscillation coil L108	Same as above
10	SW		Thru 10PF to AM EXT ANT. as small as possible	18.3MHz	High end of Dial	Same as above	Oscillation Trimmer TC7	Same as above
11	SW	Tracking	Thru 10PF to AM EXT ANT. as small as possible	6.5MHz	6.5MHz	Same as above	Antenna coil L106	Same as above
12	SW		Thru 10PF to AM EXT ANT. as possible	16MHz	16MHz	Same as above	Antenna Trimmer TC4	Same as above

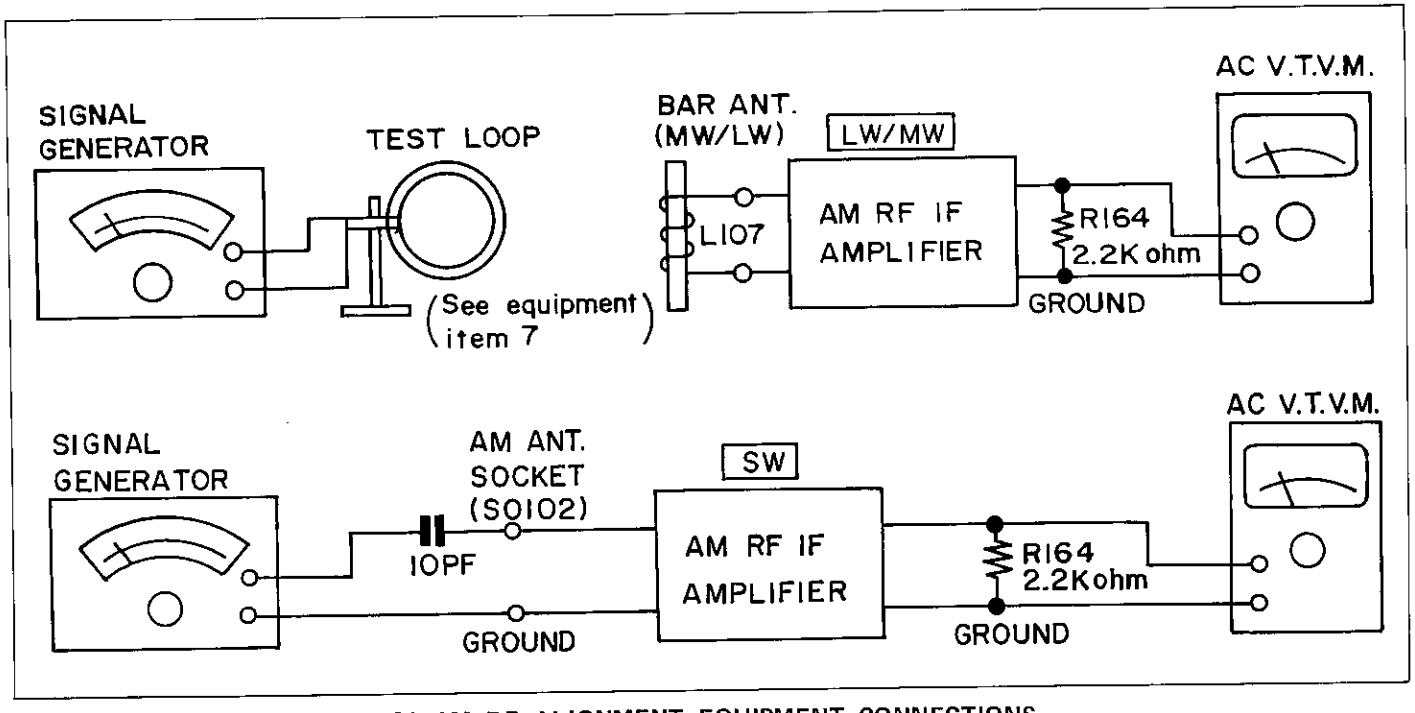


Figure 21 AM RF ALIGNMENT EQUIPMENT CONNECTIONS

FM IF ALIGNMENT (Refer to Figures 22 and 25)

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		DIAL POINTER SETTING	SCOPE CONNECTION	ADJUSTMENT	REMARKS
			CONNECTION	FREQUENCY				
1	FM	IF	Thru 2 PFD to TP101	10.7MHz ± 300kHz	High end of Dial	TP102	T102	Adjust "S" curve at maximum. Adjust 10.7MHz at the center of "S" curve. (Refer to Figure 22 Ⓐ)
2	FM		Thru 2 PFD to TP101	10.7MHz ± 400kHz	High end of Dial	TP102	T101	Adjust the maximum noise. (Refer to Fugure 22Ⓑ)
3	Repeat adjustment to obtain "S" curve as shown in Figure 22.							

FM RF ALIGNMENT (Refer to Figures 23 and 25)

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		DIAL POINTER SETTING	METER CONNECTION	ADJUSTMENT	REMARKS
			CONNECTION	FREQUENCY				
1	FM	Band Coverage	FM ANT terminal (through 300ohm matching pad)	87.4MHz Modulated	Low end of Dial	TP102	Oscillation coil L105	Adjust for maximum output. Repeat 2 or 3 times.
2	FM		Same as above	109MHz Modulated	High end of Dial	Same as above	Oscillation trimmer TC3	Same as above
3	FM	Tracking	Same as above	90MHz	90MHz	Same as above	ANT. coil L101 RF coil L102	Same as above
4	FM		Same as above	106MHz	106MHz	Same as above	RF trimmer TC2 ANT trimmer TC1	Same as above
5	If necessary, repeat step 1–step 4.							

FM MPX ALIGNMENT (Refer to Figures 24 and 25)

STEP	BAND	TEST STAGE	STEREO SIGNAL GENERATOR		TUNING FREQUENCY	METER CONNECTION	ADJUSTMENT	REMARKS
			CONNECTION	MOD. FREQUENCY				
1	FM	STEREO (MONO: OFF)	FM-ANT. Terminal	98MHz Modulated	98MHz	TP103 (Through a 100kohm)	VR101	Adjust for 19 ± 0.1kHz

Note: Output level of FM Signal Generator which is modulated by a FM Stereo Signal Generator shall be 1 mV (60 dB).

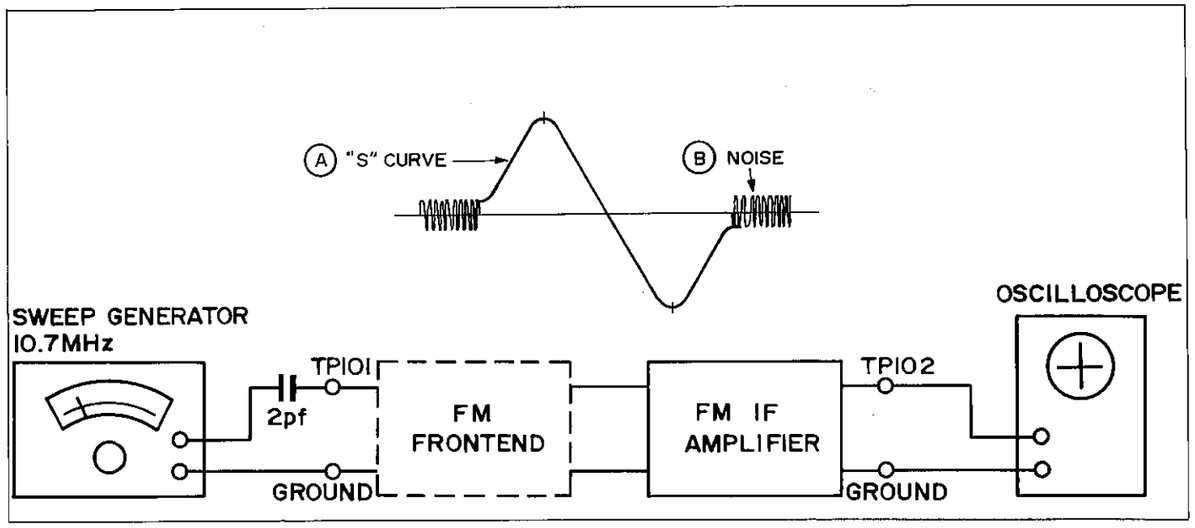


Figure 22 FM IF ALIGNMENT EQUIPMENT CONNECTIONS

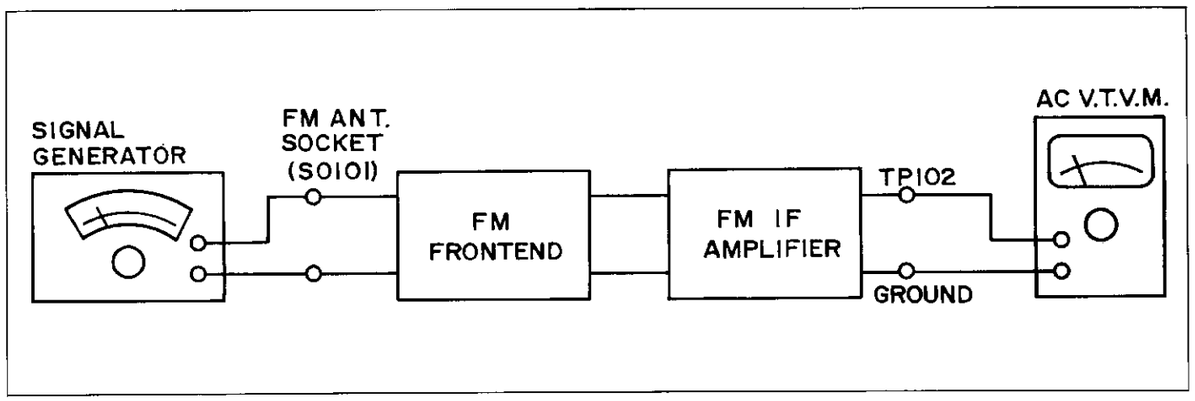


Figure 23 FM RF ALIGNMENT EQUIPMENT CONNECTIONS

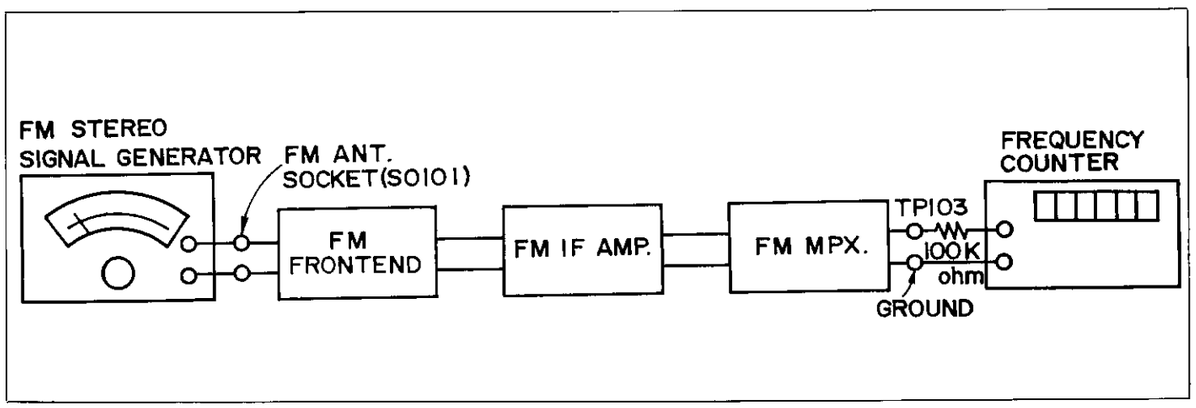


Figure 24 FM MPX ALIGNMENT EQUIPMENT CONNECTIONS

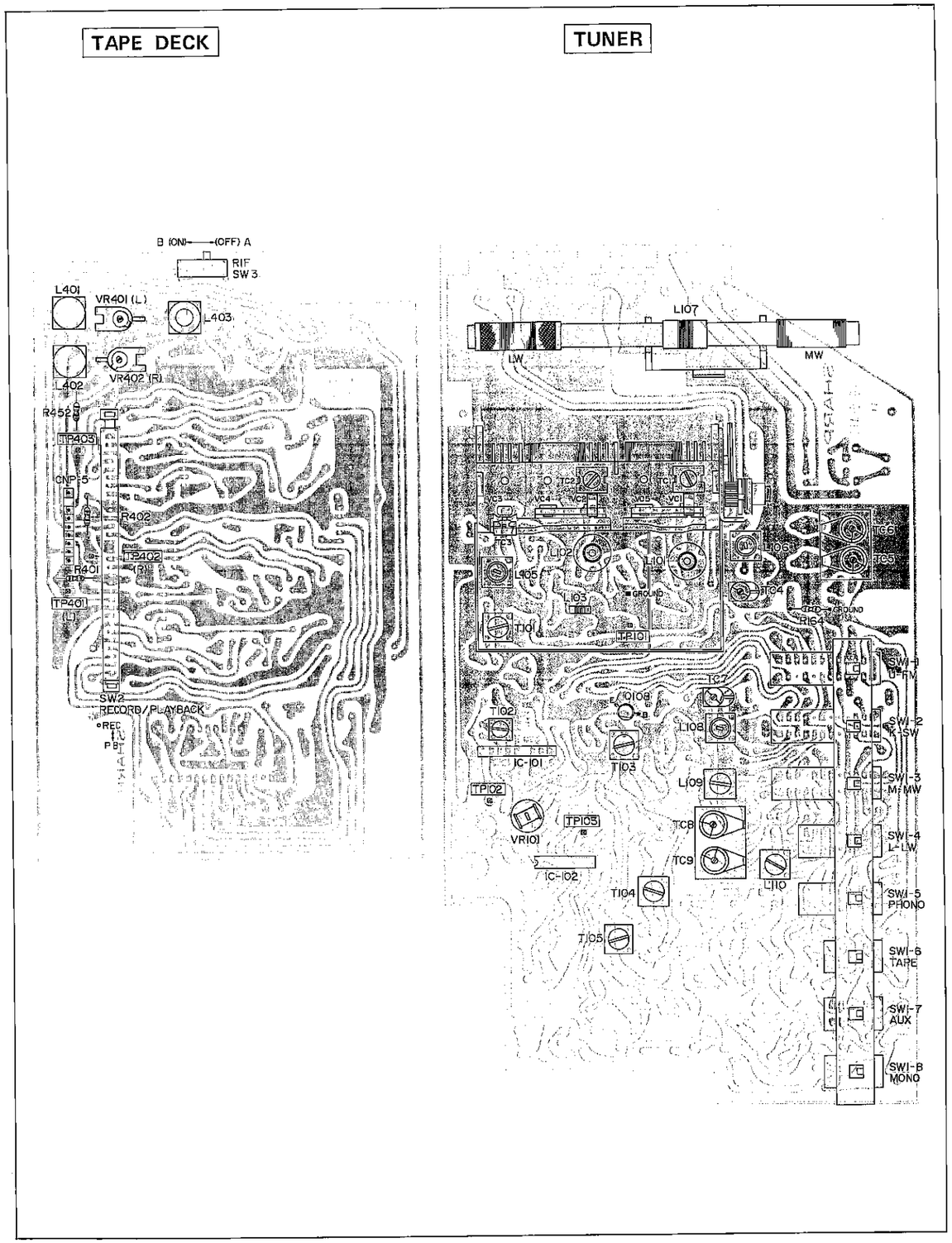
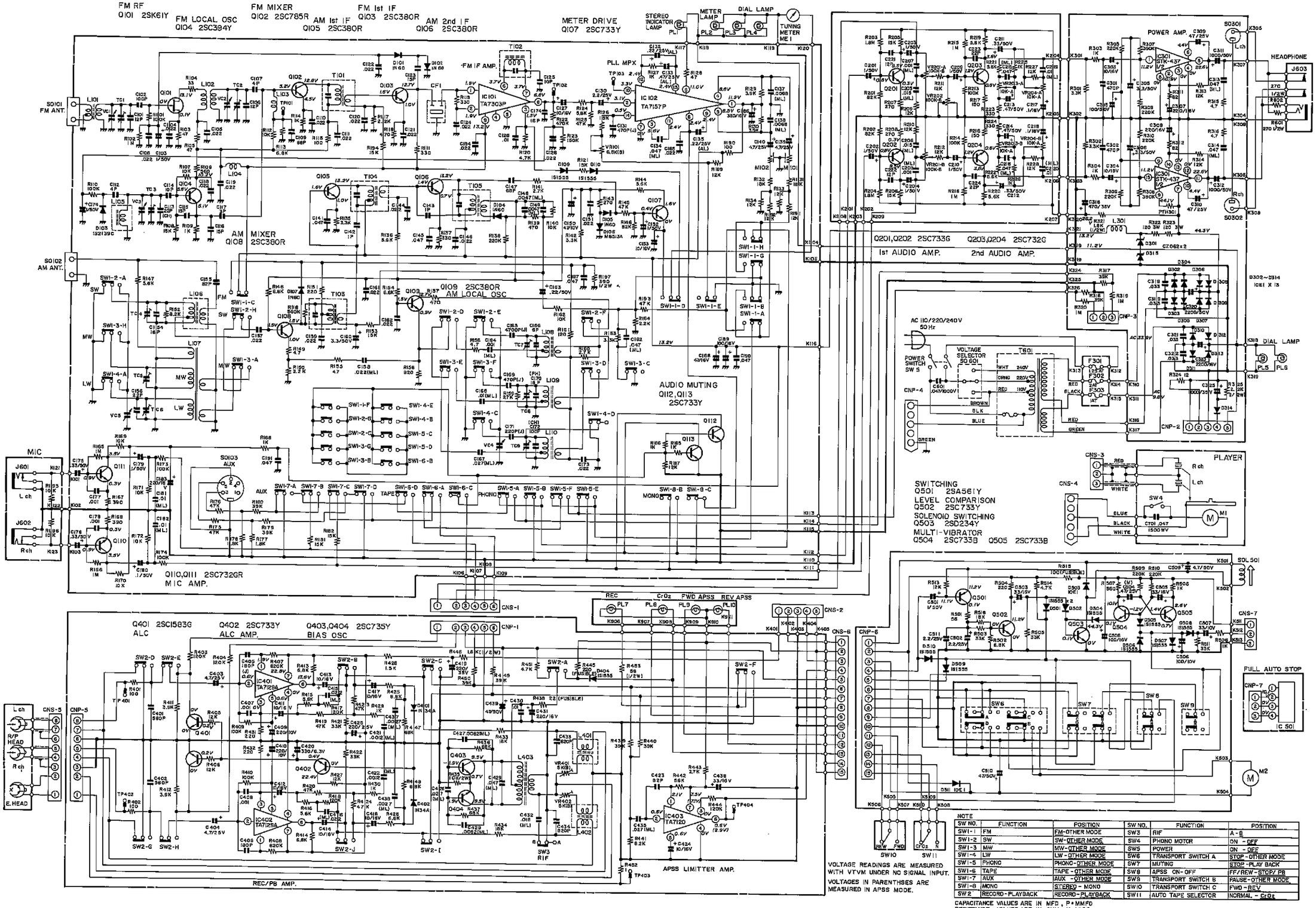


Figure 25 ALIGNMENT POINT



SW NO.	FUNCTION	POSITION	SW NO.	FUNCTION	POSITION
SW1-1	FM	FM-OTHER MODE	SW3	RIF	A-B
SW1-2	SW	SW-OTHER MODE	SW4	PHONO MOTOR	ON - OFF
SW1-3	MW	MW-OTHER MODE	SW5	POWER	ON - OFF
SW1-4	LW	LW-OTHER MODE	SW6	TRANSPORT SWITCH A	STOP-OTHER MODE
SW1-5	PHONO	PHONO-OTHER MODE	SW7	MUTING	STOP-PLAY BACK
SW1-6	TAPE	TAPE-OTHER MODE	SW8	APSS ON-OFF	FF/REW-STOP/PB
SW1-7	AUX	AUX -OTHER MODE	SW9	TRANSPORT SWITCH B	PAUSE-OTHER MODE
SW1-8	MONO	STEREO - MONO	SW10	TRANSPORT SWITCH C	FWD-REV
SW2	RECORD-PLAYBACK	RECORD-PLAYBACK	SW11	AUTO TAPE SELECTOR	NORMAL - CrO2

(Specifications of wiring diagrams of this model are subject to change for the improvement without prior notice.)

Figure 26 SCHEMATIC DIAGRAM

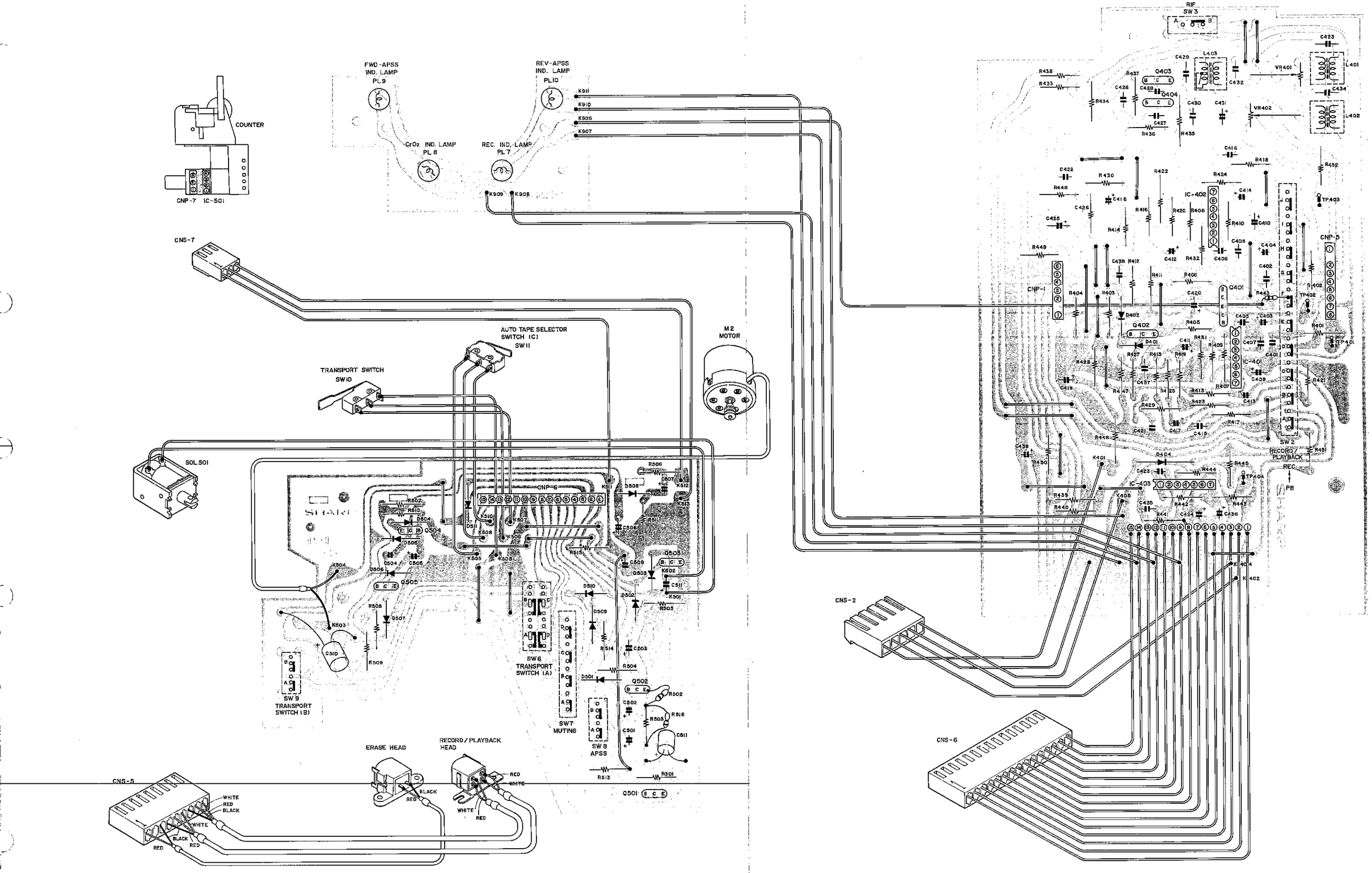


Figure 27 WIRING SIDE OF APSS/RECORD P.W. BOARD

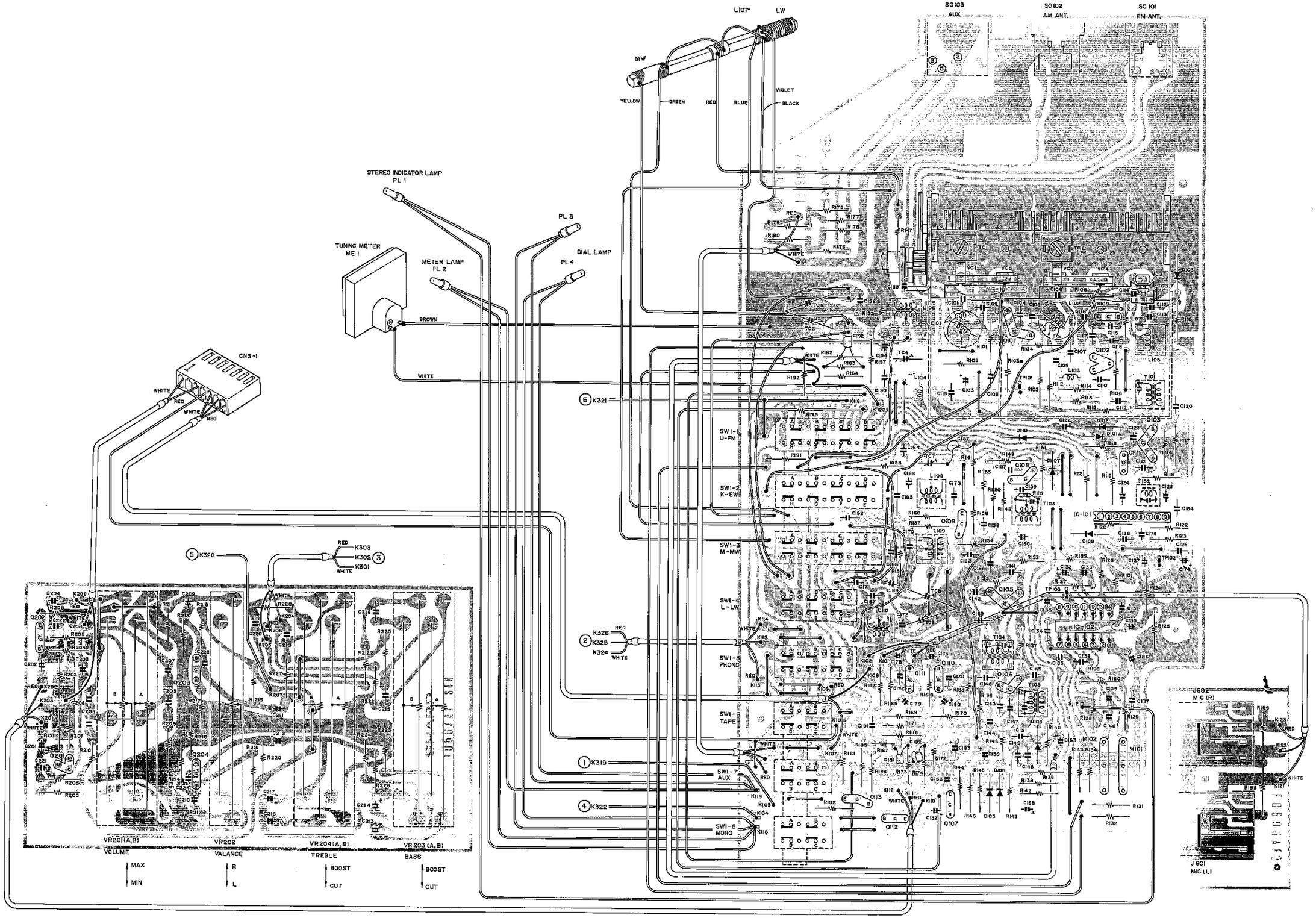


Figure 28 WIRING SIDE OF TUNER/TONE P.W. BOARD

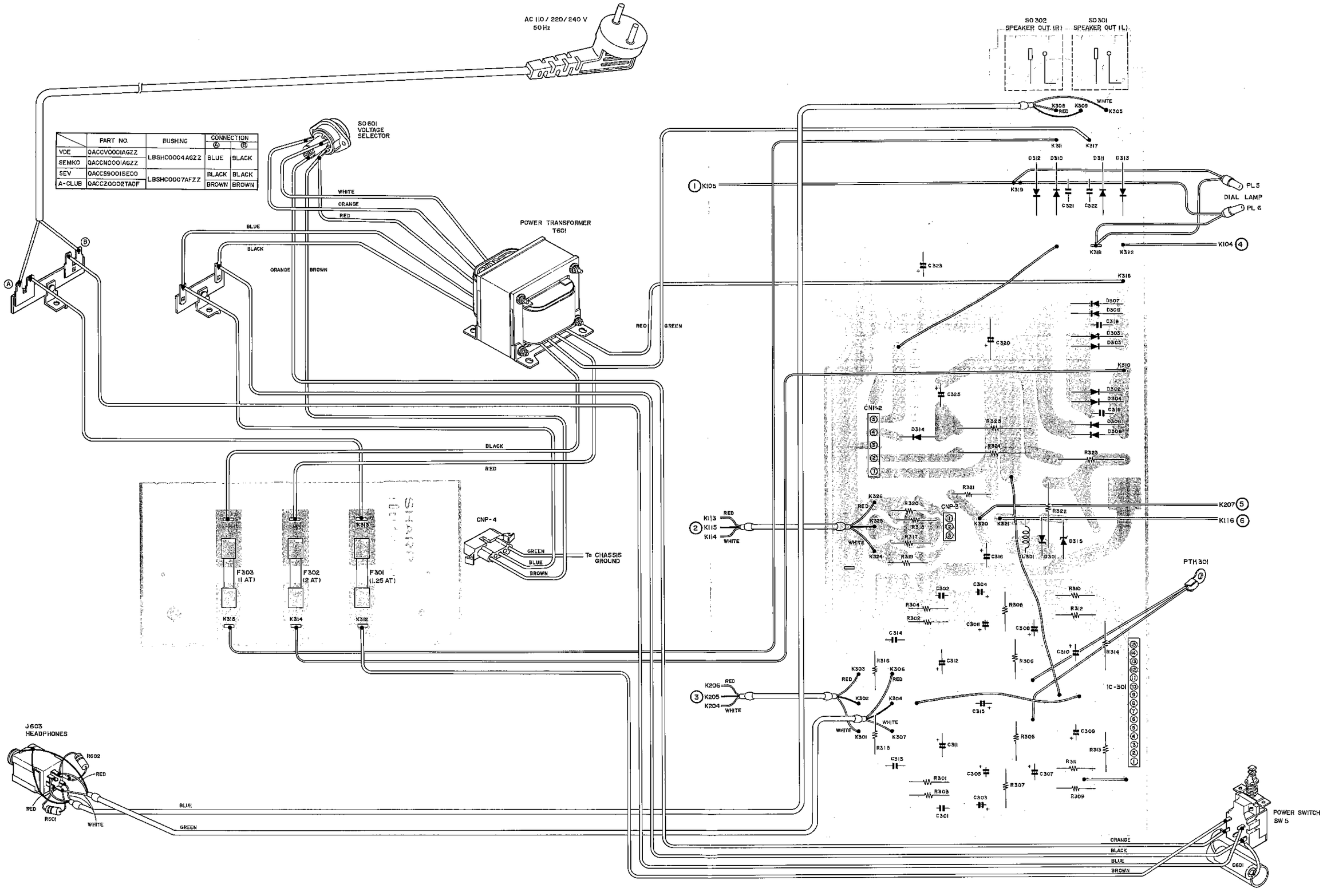


Figure 29 WIRING SIDE OF FUSE/POWER P.W. BOARD

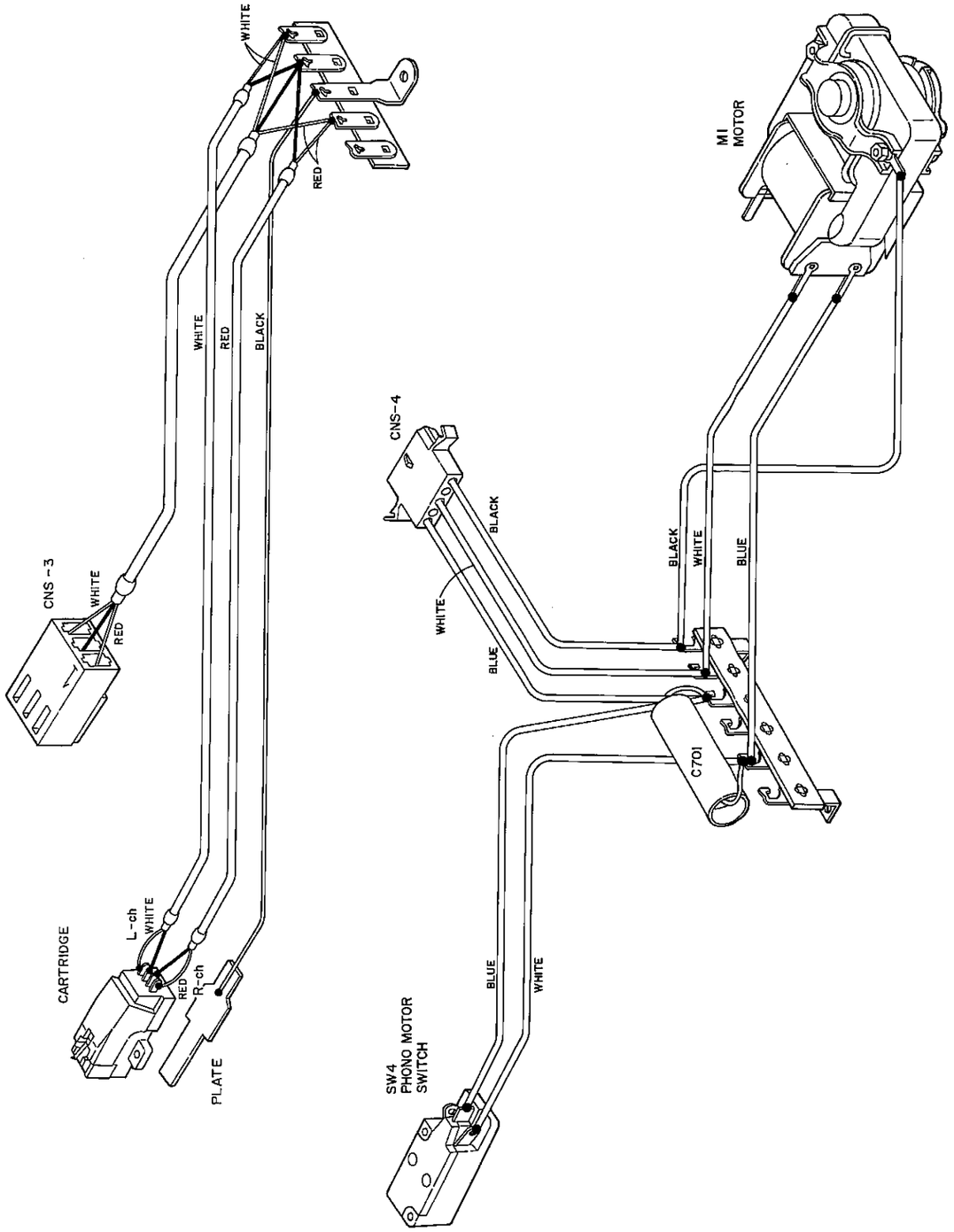


Figure 30 WIRING CONNECTION OF RECORD PLAYER

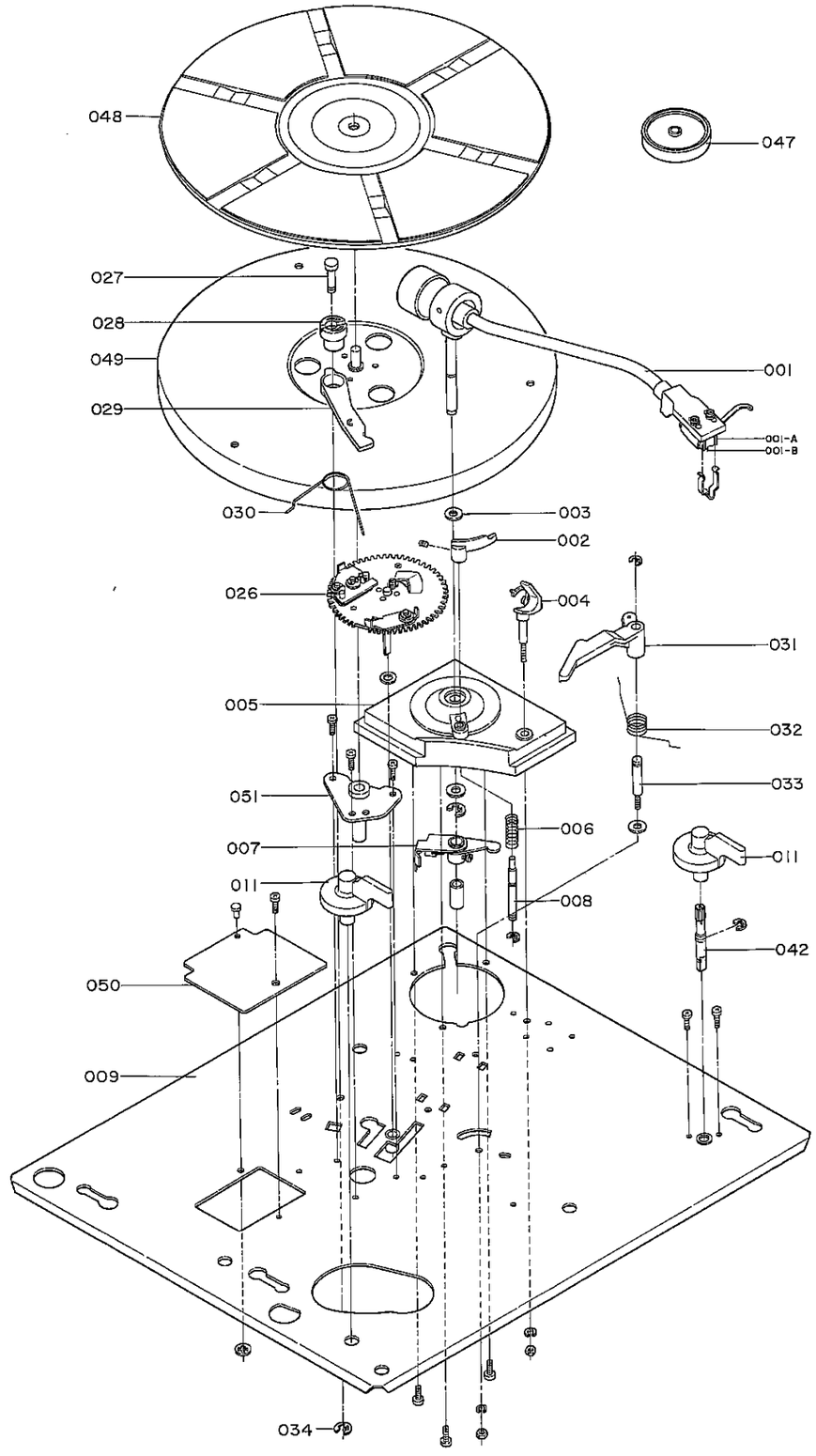


Figure 31 PLAYER EXPLODED TOP VIEW

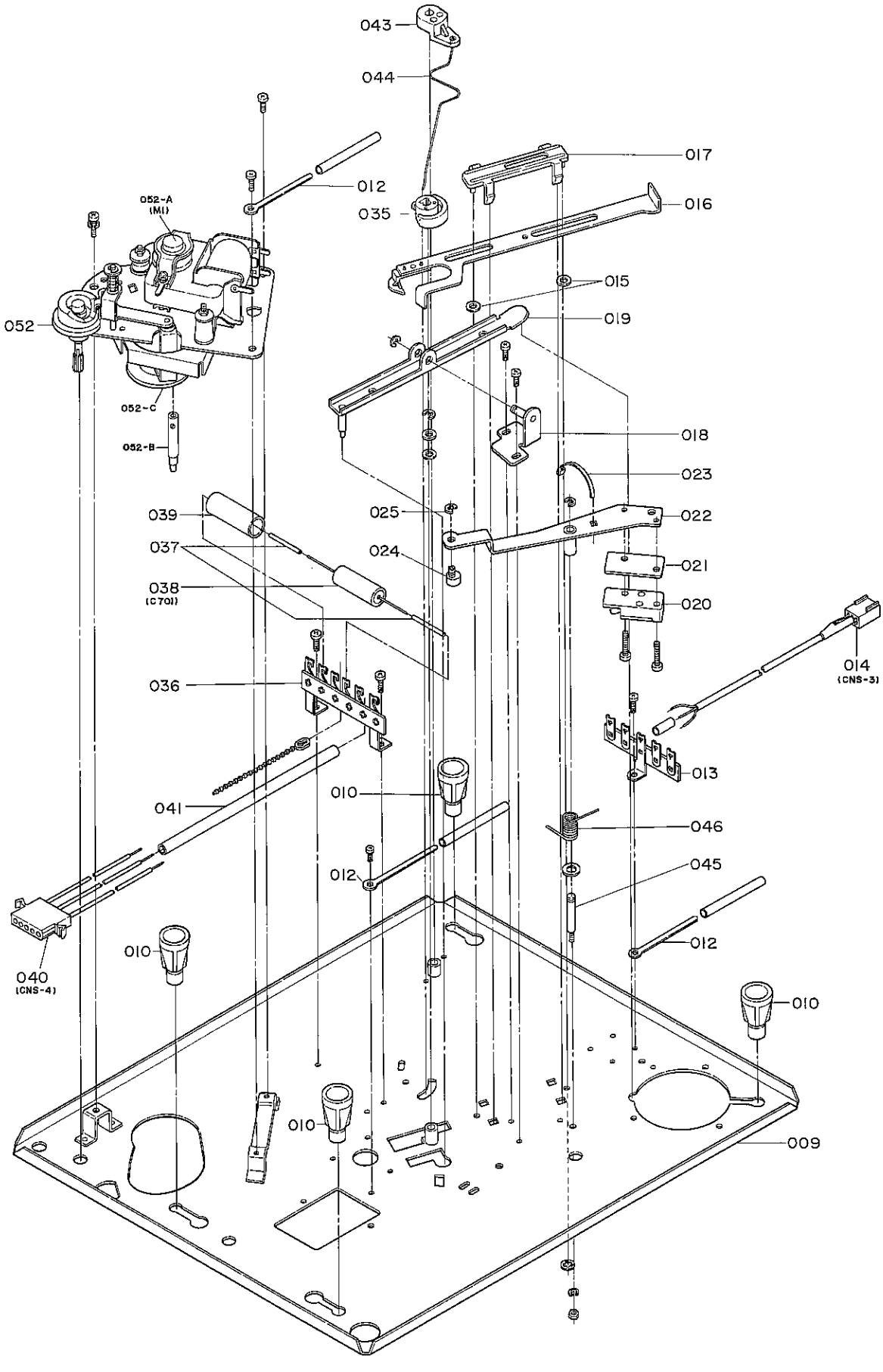


Figure 32 PLAYER EXPLODED BOTTOM VIEW

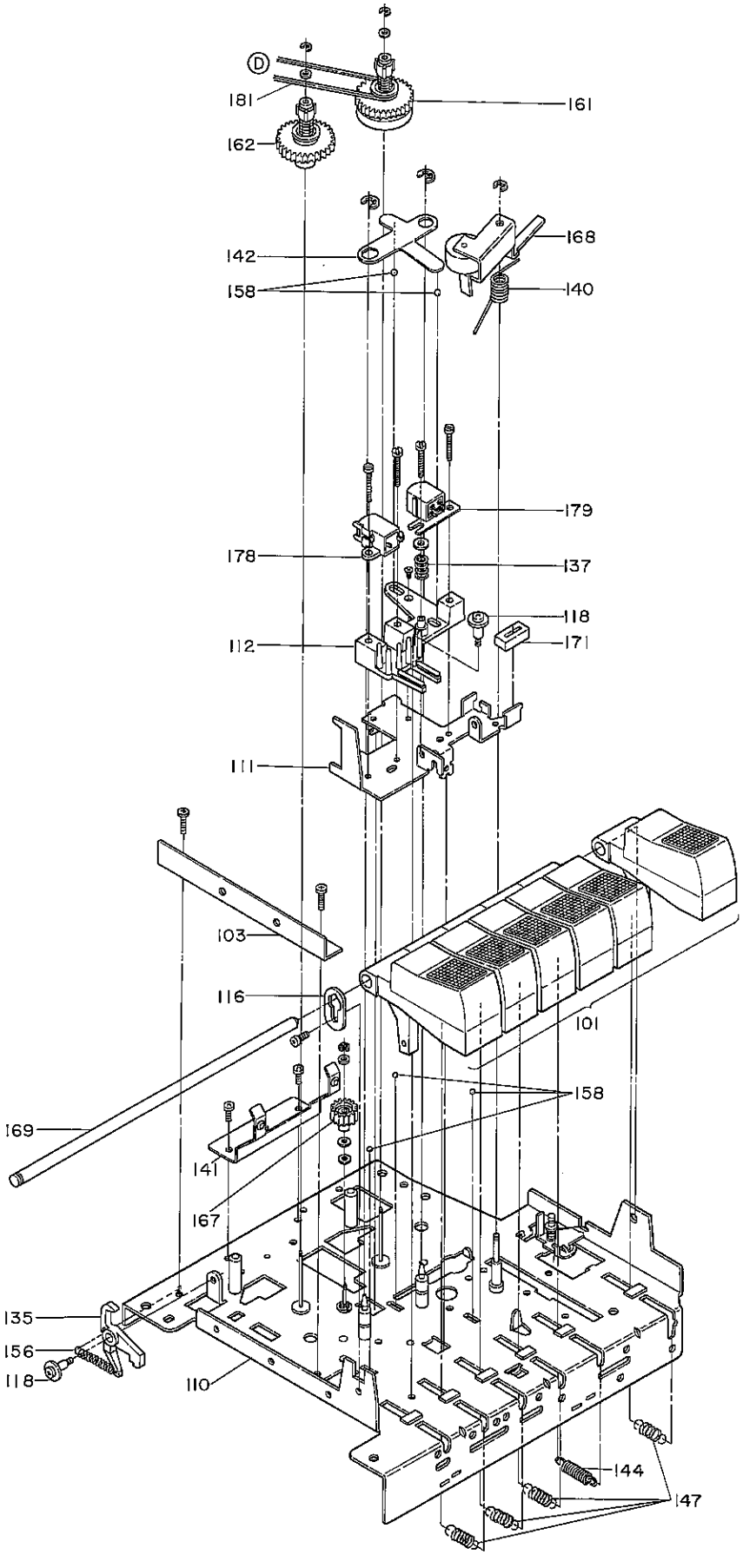


Figure 33 TAPE DECK MECHANISM EXPLODED TOP VIEW

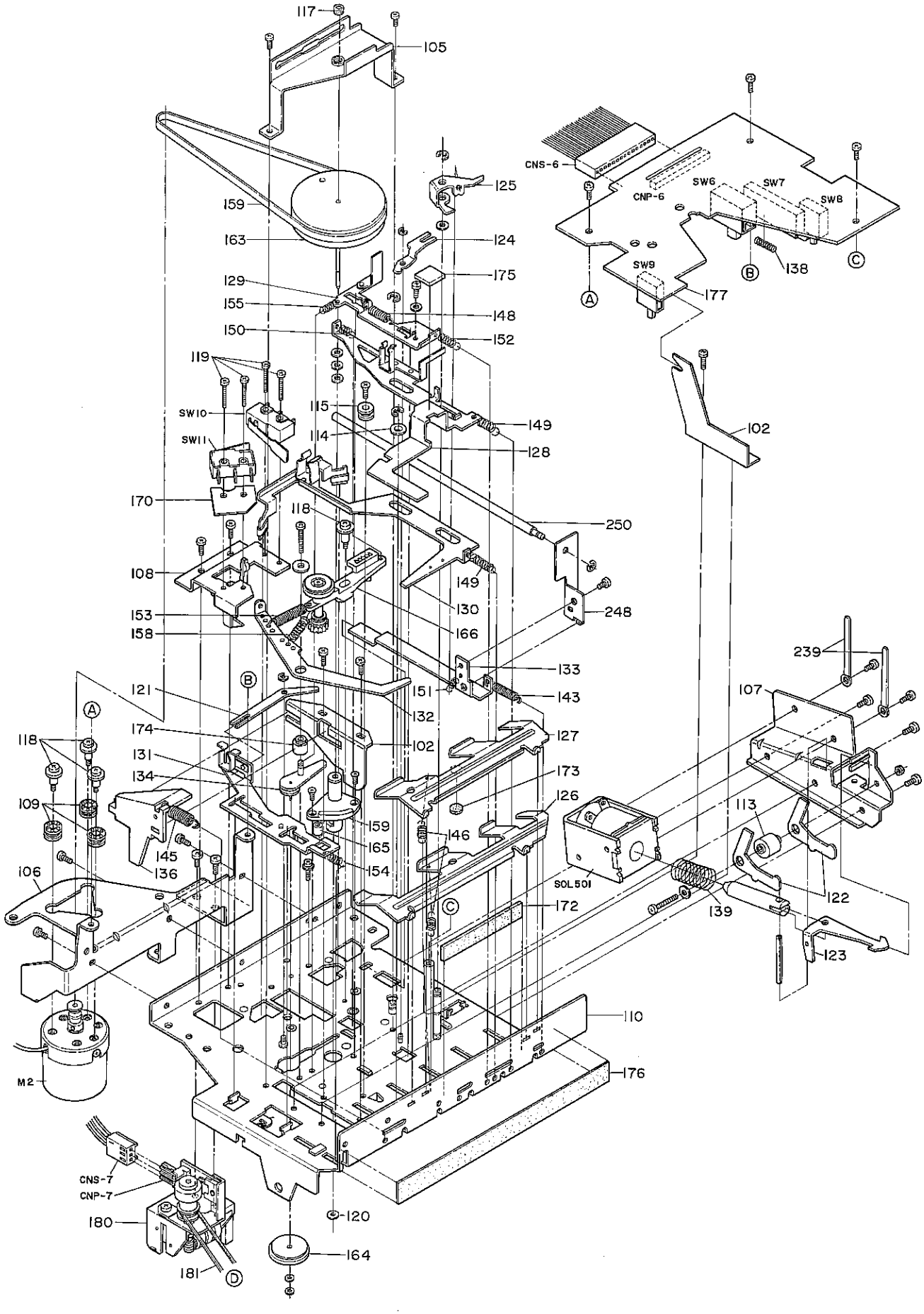
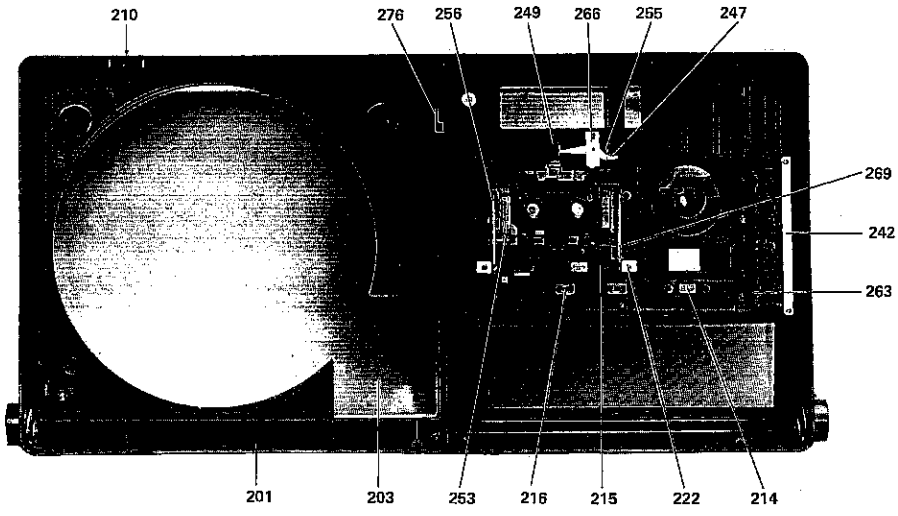
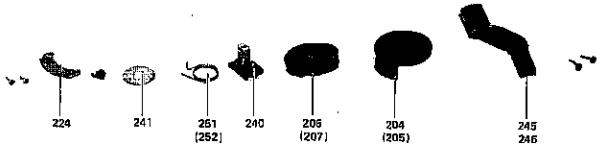
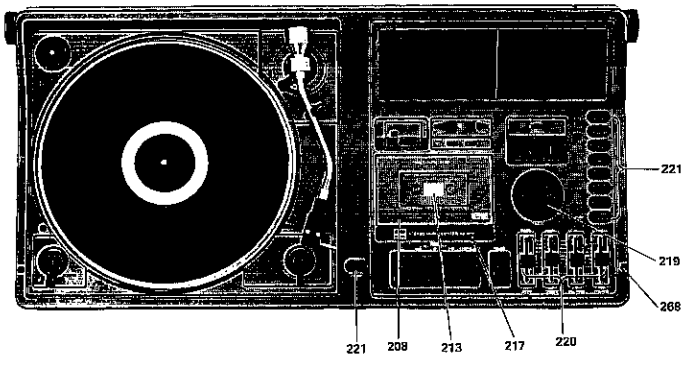


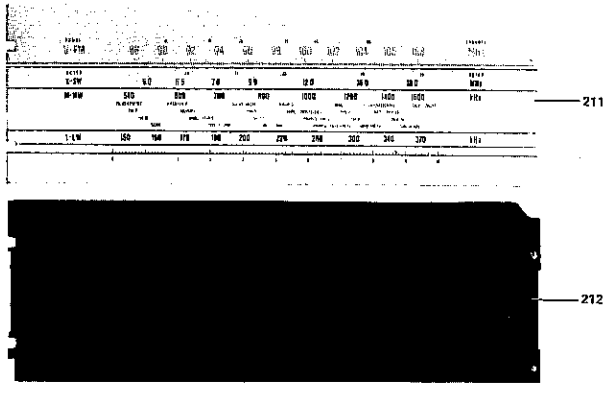
Figure 34 TAPE DECK MECHANISM EXPLODED BOTTOM VIEW





( ) : Left side





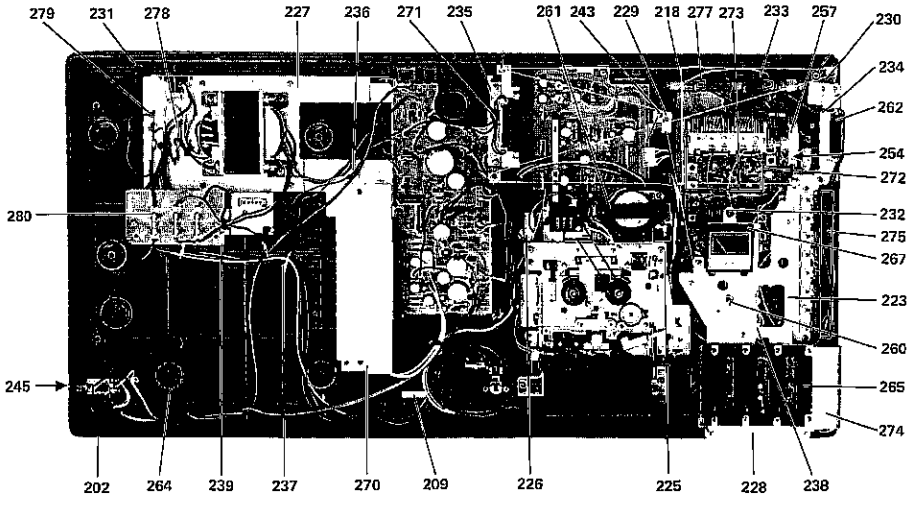


Figure 35 MISCELLANEOUS PARTS

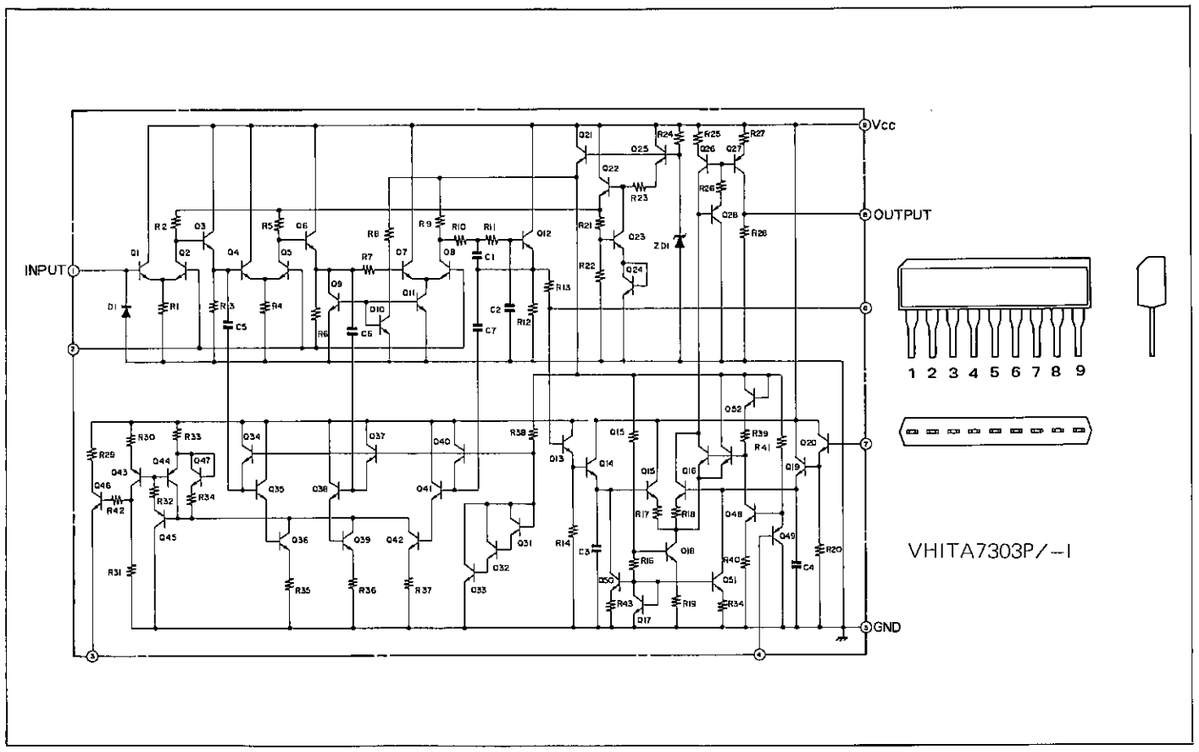


Figure 36 EQUIVALENT CIRCUIT OF IC101

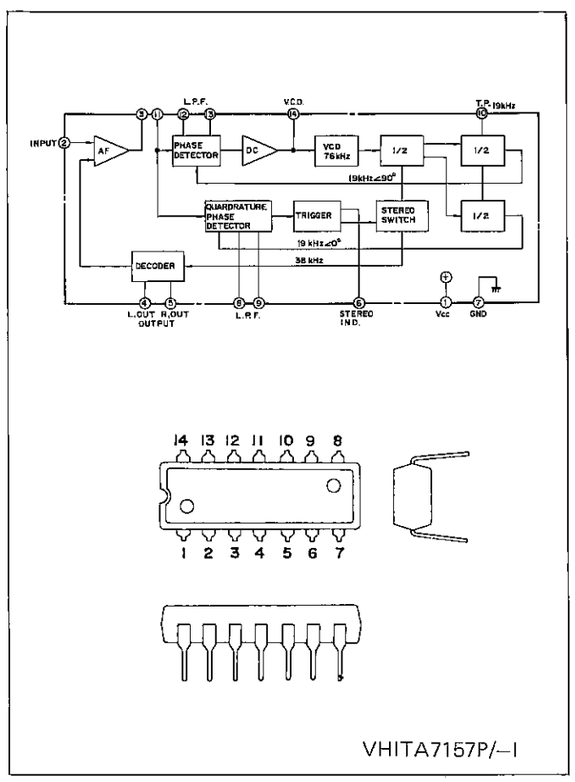


Figure 37 EQUIVALENT CIRCUIT OF IC102

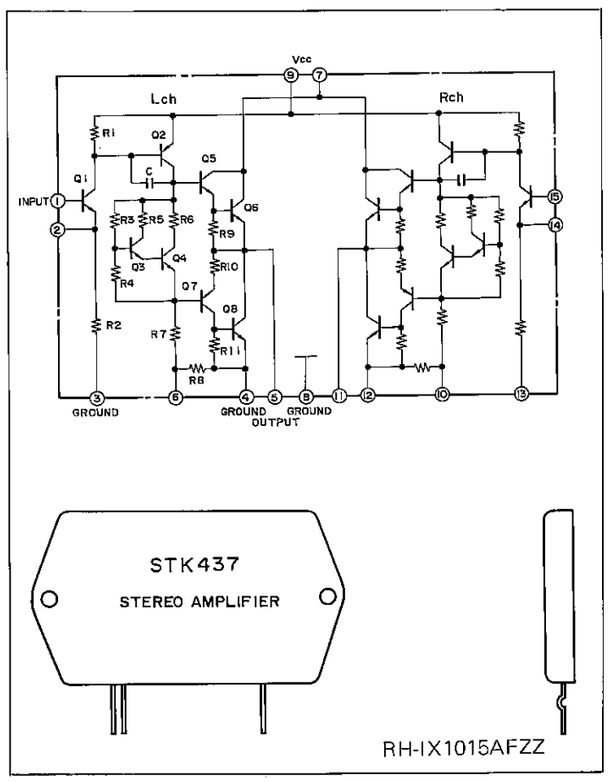


Figure 38 EQUIVALENT CIRCUIT OF IC301

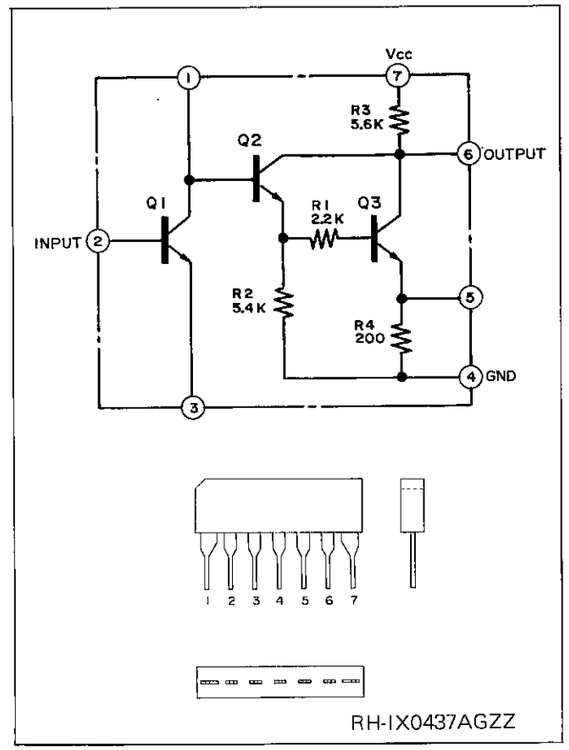


Figure 39 EQUIVALENT CIRCUIT OF IC401, 402

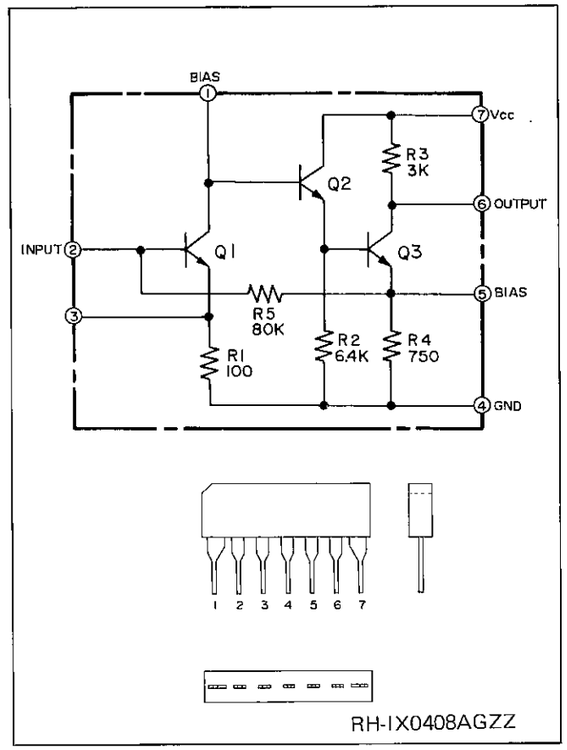


Figure 40 EQUIVALENT CIRCUIT OF IC403

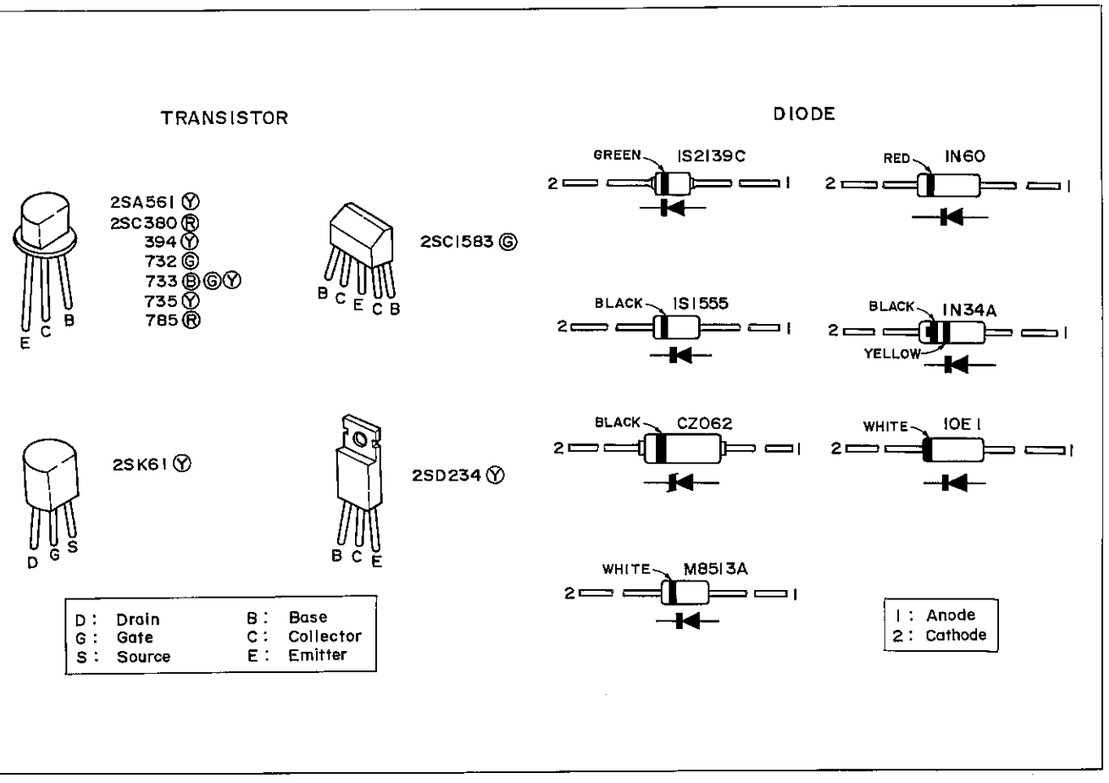


Figure 41 TYPES OF TRANSISTOR, DIODE AND LED

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. 4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE
		INTEGRATED CIRCUITS	
IC101	VHITA7303P/-1	FM IF Amp. and Detector (TA7303P)	AM
IC102	VHITA7157P/-1	PLL MPX Demodulator (TA7157P)	AN
IC301	RH-IX1015AFZZ	Power Amp. (STK437)	AY
IC401, IC402	RH-IX0437AGZZ	Record/Playback Amp. (TA7129A)	AH
IC403	RH-IX0408AGZZ	APSS Limiter Amp. (TA7120)	AM
IC501	RH-IX1075AFZZ	Full Auto Stop Senser (DN838)	AL
		TRANSISTORS	
Q101	VS2SK61-Y//-1	FM RF Amp. (2SK61Ⓨ)	AF
Q102	VS2SC785-R/-1	FM Mixer (2SC785Ⓡ)	AD
Q103	VS2SC380-R/-1	FM 1st IF Amp. (2SC380Ⓡ)	AD
Q104	VS2SC394-Y/-1	FM Local Oscillator (2SC394Ⓨ)	AD
Q105	VS2SC380-R/-1	AM 1st IF Amp. (2SC380Ⓡ)	AD
Q106	VS2SC380-R/-1	AM 2nd IF Amp. (2SC380Ⓡ)	AD
Q107	VS2SC733-Y/-1	Meter Drive (2SC733Ⓨ)	AD
Q108	VS2SC380-R/-1	AM Mixer (2SC380Ⓡ)	AD
Q109	VS2SC380-R/-1	AM Local Oscillator (2SC380Ⓡ)	AD
Q110, Q111	VS2SC732-G/-1	Mic. Amp. (2SC732Ⓖ)	AD
Q112, Q113	VS2SC733-Y/-1	Audio Muting (2SC733Ⓨ)	AD
Q201, Q202	VS2SC733-G/-1	1st Audio Amp. (2SC733Ⓖ)	AD
Q203, Q204	VS2SC732-G/-1	2nd Audio Amp. (2SC732Ⓖ)	AD
Q401	VS2SC1583G-1F	ALC (2SC1583Ⓖ)	AF
Q402	VS2SC733-Y/-1	ALC Amp. (2SC733Ⓨ)	AD
Q403, Q404	VS2SC735-Y/1G	Bias Oscillator (2SC735Ⓨ)	AD
Q501	VS2SA561-Y/-1	Switching (2SA561Ⓨ)	AD
Q502	VS2SC733-Y/-1	Level Comparison (2SC733Ⓨ)	AD
Q503	VS2SD234-Y/-3	Solenoid Switching (2SD234Ⓨ)	AG
Q504, Q505	VS2SC733-B/-1	Multivibrator, Auto Stop (2SC733Ⓑ)	AD
		DIODES	
D101, D102	VHD1N60////-1	FM AGC (1N60)	AB
D103	VHC1S2139-C-1	FM AFC (1S2139C)	AE
D104	VHD1N60////-1	AM Detector (1N60)	AB
D105	VHD1N60////-1	Rectifier for Meter (1N60)	AB
D106	VHVM8513A-R-1	Voltage Regulator (M8513A)	AB
D107	VHD1N60////-1	AM Overload (1N60)	AB
D109, D110	VHD1S1555V/1G	Level Shift for Meter (1S1555)	AC
D301	VHECZ-062//-1	Voltage Regulator (CZ062)	AE
D302, D303, D304, D305, D306, D307, D308, D309, D310, D311, D312, D313	VHD10E1////-1	Rectifier for Power (10E1)	AC
D314	VHD10E1////-1	Back Current Protection (10E1)	AC
D315	VHECZ-062//-1	Voltage Regulator (CZ062)	AE
D401, D402	VHD1N34A-Y/1G	Rectifier for ALC (1N34A)	AB
D404	VHD1S1555V/1G	Back Current Protection for Audio Muting (1S1555)	AC
D501	VHD1S1555V/1G	Back Current Protection for APSS Muting (1S1555)	AC
D502	VHD1S1555V/1G	Back Current Protection for APSS Drive (1S1555)	AC
D503	RH-DX1006AFZZ	Surge Absorber (10E1)	AC
D504	VHD1S1555V/1G	Back Current Protection for Auto Stop (1S1555)	AC
D505	VHD1S1555V/1G	Level Shift (1S1555)	AC
D506	VHD1S1555V/1G	Rectifier for Auto Stop Senser (1S1555)	AC
D507	VHD1S1555V/1G	Level Shift (1S1555)	AC
D508	VHD1S1555V/1G	Rectifier for Auto Stop Senser (1S1555)	AC
D509, D510	VHD1S1555V/1G	Back Current Protection for APSS Muting (1S1555)	AC
D511	RH-DX1006AFZZ	Back Current Protection for Tape Motor (10E1)	AC
		COILS	
L101	RCILA0354AFZZ	FM Antenna	AD
L102	RCILR0303AFZZ	FM RF	AE
L103	RCILC0003AGZZ	FM IF Idler	AB
L104	VP-LH100M0000	RF Choke	AB
L105	RCILB0418AFZZ	FM Local Oscillation	AD
L106	RCILA0410AFZZ	SW Antenna	AE
L107	RCILA0409AFZZ	LW/MW Bar Antenna	AN
L108	RCILB0415AFZZ	SW Oscillator	AE
L109	RCILB0416AFZZ	MW Oscillator	AD
L110	RCILB0417AFZZ	LW Oscillator	AD

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
L301	VP-LH101K0000	Choke, 100μH	AB
L401, L402	RCILB0420AFZZ	Bias Transformer	AE
L403	RCILB0419AFZZ	Bias Oscillator	AE
		TRANSFORMERS	
T101	RCILI0204AFZZ	FM IF	AD
T102	RCILI0208AFZZ	FM Discriminator	AD
T103	RCILI0135AFZZ	AM 1st IF	AD
T104	RCILI0136AFZZ	AM 2nd IF	AD
T105	RCILI0161AFZZ	AM Detector	AD
T601	RTRNP0505AFZZ	Power	BE
		CONTROLS	
VC1, VC2, VC3, VC4, VC5, TC1, TC2	RVC-C0055AFZZ	Variable Capacitors, Tuning with Trimmers TC1: FM Antenna Trimmer TC2: FM RF Trimmer	AX
TC3	RTO-H1031AGZZ	FM Oscillation Trimmer	AC
TC4	RTO-H1004AFZZ	SW Antenna Trimmer	AC
TC5, TC6	RTO-H2011AGZZ	Trimmer Assembly TC5: MW Antenna Trimmer TC6: LW Antenna Trimmer	AD
TC7	RTO-H1004AFZZ	SW Oscillator Trimmer	AC
TC8, TC9	RTO-H2011AGZZ	Trimmer Assembly TC8: MW Oscillation Trimmer TC9: LW Oscillation Trimmer	AD
VR101	RVR-M0077AGZZ	6.8K ohm (B) VCO Adjust	AG
VR201 (A, B)	RVR-Q0056AFZZ	100K ohm (B) Volume	AK
VR202	RVR-Q0057AFZZ	100K ohm (B) Balance	AG
VR203 (A, B)	RVR-P0059AFZZ	10K ohm (A) Bass	AK
VR204 (A, B)	RVR-P0059AFZZ	10K ohm (A) Treble	AK
VR401, VR402	RVR-M0126AFZZ	5K ohm (B) Bias Adjustment	AC
		CERAMIC FILTER	
CF1	RFILF0053AFZZ	FM IF	AE
		PACKAGED CIRCUITS	
M101, M102	RMPTA0064AFZZ	Filter, 38kHz	AE
		ELECTROLYTIC CAPACITORS	
C103	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C127	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C130	VCEALU1HW225M	2.2MFD, 50V, ±20%	AD
C132	VCAAAU1EB224K	.22MFD, 25V, ±10%, Aluminum	AC
C133	VCAAAU1EB474K	.47MFD, 25V, ±10%, Aluminum	AC
C135	VCAAAU1EB224K	.22MFD, 25V, ±10%, Aluminum	AC
C139, C140	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C150	VCEAAU1AW476Y	47MFD, 10V, +50 −10%	AB
C152	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C153	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C160	VCEAAU1HW335A	3.3MFD, 50V, +75 −10%	AB
C163	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C174	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C175, C176	VCEALU1HW334M	.33MFD, 50V, ±20%	AB
C179, C180	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C183	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C186	VCEAAU1CW337Y	330MFD, 16V, +50 −10%	AD
C188	VCEAAU1CW476Y	47MFD, 16V, +50 −10%	AC
C189	VCEAAU1CW107Y	100MFD, 16V, +50 −10%	AC
C201, C202	VCEALU1HC105A	1MFD, 50V, +75 −10%	AC
C203, C204	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C209, C210	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C211, C212	VCEALU1HW334M	.33MFD, 50V, ±20%	AB
C213, C214	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C217, C218	VCEALU1CW104M	.1MFD, 16V, ±20%	AB
C303, C304	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C305, C306	VCEAAU1HW335A	3.3MFD, 50V, +75 −10%	AB
C307, C308	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C309, C310	VCEAAU1EW476Y	47MFD, 25V, +50 −10%	AC
C311, C312	VCEAAU1HW108Y	1000MFD, 50V, +50 −10%	AG
C315	VCEAAU1HW107Y	100MFD, 50V, +50 −10%	AD
C316	VCEAAU1VW477Y	470MFD, 35V, +50 −10%	AE
C320	VCEAAU1HW228Y	2200MFD, 50V, +50 −10%	AN
C323	VCEAAU1CW228Y	2200MFD, 16V, +50 −10%	AF
C325	VCEAAU1VW108Y	1000MFD, 35V, +50 −10%	
C403, C404	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C409, C410	VCEAAU1AW227Y	220MFD, 10V, +50 −10%	AC
C411, C412, C413, C414, C417, C418	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C419	VCEAAU1VW227Y	220MFD, 35V, +50 −10%	AD
C420	VCEAAU0JW337Y	330MFD, 6.3V, +50 −10%	AC
C424	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C425	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	
C431	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C436	VCEAAU1CW336Y	33MFD, 16V, +50 −10%	AC
C439	VCEAAU1HW476Y	47MFD, 50V, +50 −10%	AC
C501	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C502	VCEAAU1EW225M	2.2MFD, 25V, ±20%	
C503	VCEAAU1CW336Y	33MFD, 16V, +50 −10%	AC
C504	VCEALU1EW474M	.47MFD, 25V, ±20%	
C505	VCEAAU1CW336Y	33MFD, 16V, +50 −10%	AC
C506	VCEAAU1AW107Y	100MFD, 10V, +50 −10%	AB
C507	VCEAAU1AW336Y	33MFD, 10V, +50 −10%	AB
C508	VCEAAU1CW107Y	100MFD, 16V, +50 −10%	AC
C509	VCEAAU1HW475A	4.7MFD, 50V, +75 −10%	AB
C510	VCEAAU1HW476Y	47MFD, 50V, +50 −10%	AC
C511	VCEAAU1EW225M	2.2MFD, 25V, ±20%	

CAPACITORS

(Unless otherwise specified capacitors are 50V, +80 −20%, Ceramic type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
C101	VCCSPU1HL120K	12PF, 50V, ±10%, Ceramic	
C102	VCCSPU1HL101K	100PF, 50V, ±10%, Ceramic	
C104, C105	VCKZPU1HF223Z	.022MFD	
C106	VCCSPU1HL120K	12PF, 50V, ±10%, Ceramic	
C107	VCCSPU1HL4R0C	4PF, 50V, ±.25PF, Ceramic	
C108	VCKZPU1HF223Z	.022MFD	
C109	VCCSPU1HL680K	68PF, 50V, ±10%, Ceramic	
C110, C111	VCKZPU1HF223Z	.022MFD	
C112	VCCSPU1HL4R0C	4PF, 50V, ±.25PF, Ceramic	
C113	VCCCPU1HH220J	22PF, 50V, ±5%, Ceramic	
C114	VCCSPU1HL100K	10PF, 50V, ±10%, Ceramic	
C115, C116	VCCSPU1HL150K	15PF, 50V, ±10%, Ceramic	
C117	VCCSPU1HL3R0C	3PF, 50V, ±.25PF, Ceramic	
C118, C119, C120, C121, C122	VCKZPU1HF223Z	.022MFD	
C123	VCCSPU1HL150K	15PF, 50V, ±10%, Ceramic	
C124	VCKZPU1HF223Z	.022MFD	
C125	VCCSPU1HL100K	10PF, 50V, ±10%, Ceramic	
C126	VCKZPU1HF103Z	.01MFD	
C128	VCKZPU1HF223Z	.022MFD	
C131	VCQSMT1HS471J	470PF, 50V, ±5%, Styrol	AB
C134	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AC
C137, C138	VCQYKU1HM682K	.0068MFD, 50V, ±10%, Mylar	AB
C141	VCKZPU1HF473Z	.047MFD	
C142, C143	VCCSPU1HL1R0C	1PF, 50V, ±.25PF, Ceramic	
C144	VCKZPU1HF223Z	.022MFD	
C145	VCKZPU1HF473Z	.047MFD	
C146	VCKZPU1HF223Z	.022MFD	
C147	VCCSPU1HL680K	68PF, 50V, ±10%, Ceramic	
C148, C149	VCQYKU1HM472K	.0047MFD, 50V, ±10%, Mylar	AB
C151	VCKZPU1HF223Z	.022MFD	
C154	VCCSPU1HL180K	18PF, 50V, ±10%, Ceramic	
C155	VCCSPU1HL820K	82PF, 50V, ±10%, Ceramic	
C156	VCCSPU1HL220K	22PF, 50V, ±10%, Ceramic	
C157	VCKZPU1HF223Z	.022MFD	
C158	VCQYKU1HM223K	.022MFD, 50V, ±10%, Mylar	AB
C159, C161, C162	VCKZPU1HF223Z	.022MFD	
C164	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AB
C165	VCQSMT1HS472J	4700PF, 50V, ±5%, Styrol	AC
C166	VCCSPU1HL6R0C	6PF, 50V, ±.25PF, Ceramic	
C167	VCQYKU1HM273K	.027MFD, 50V, ±10%, Mylar	AB
C168	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AB
C169	VCQSMT1HS471J	470PF, 50V, ±5%, Styrol	AB
C170	VCCPPU1HH180J	18PF, 50V, ±5%, Ceramic	
C171	VCQSMT1HS221J	220PF, 50V, ±5%, Styrol	AB
C172	VCCCPU1HH101J	100PF, 50V, ±5%, Ceramic	
C173	VCKZPU1HF223Z	.022MFD	
C174	VCCSPU1HL180K	18PF, 50V, ±10%, Ceramic	
C177, C178	VCKZPU1HF102P	.001MFD, 50V, +100 −0%, Ceramic	
C181, C182	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AB
C184, C185	VCKZPU1HF223Z	.022MFD	
C187	VCKZPU1HF473Z	.047MFD	
C190, C191	VCKZPU1HF473Z	.047MFD	
C192	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AC
C205, C206	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AB
C207, C208	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AB
C215, C216	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AC
C219, C220	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AB
C221, C222	VCCSPU1HL120K	12PF, 50V, ±10%, Ceramic	
C223, C224	VCCSPU1HL220K	22PF, 50V, ±10%, Ceramic	
C301, C302	VCCSPU1HL471K	470PF, 50V, ±10%, Ceramic	
C313, C314	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AC
C318, C319	VCKZPU1HF333P	.033MFD, 50V, +100 −0%, Ceramic	
C321, C322	VCKZPU1HF333P	.033MFD, 50V, +100 −0%, Ceramic	
C401, C402	VCKYPU1HB561K	560PF, 50V, ±10%, Ceramic	
C405, C406	VCCSPU1HL181J	180PF, 50V, ±5%, Ceramic	
C407, C408	VCKZPU1HF102Z	.001MFD	
C415, C416	VCQYKU1HM223K	.022MFD, 50V, ±10%, Ceramic	AB
C421, C422	VCQYKU1HM122J	.0012MFD, 50V, ±5%, Mylar	AB
C423	VCCSPU1HL820K	82PF, 50V, ±10%, Ceramic	
C426	VCQYKU1HM273K	.027MFD, 50V, ±10%, Mylar	AB
C427, C428	VCQYKU1HM822K	.0082MFD, 50V, ±10%, Mylar	AB
C429	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AC
C430	VCKZPU1HF103Z	.01MFD	
C432	VCQYKU1HM183K	.018MFD, 50V, ±10%, Mylar	AB
C433, C434	VCKYPU1HB821K	820PF, 50V, ±10%, Ceramic	
C435	VCQYKU1HM273K	.027MFD, 50V, ±10%, Mylar	AB
C437, C438	VCQYKU1HM272K	.0027MFD, 50V, ±10%, Mylar	AB
C601	VCPQAT3AC473M	.047MFD, 1000V, ±20%, Oil	AC
C701	Not Available	Player Parts 038	

PARTS LIST

RESISTORS

(Unless otherwise specified resistors are 1/4W, ±5%, Carbon type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
R101	VRD-ST2EE104J	100K ohm	
R102	VRD-ST2EE105J	1 Meg ohm	
R103	VRD-ST2EE470J	47 ohm	
R104	VRD-ST2EE330J	33 ohm	
R105	VRD-ST2EE470J	47 ohm	
R106	VRD-ST2EE561J	560 ohm	
R107	VRD-ST2EE103J	10K ohm	
R108	VRD-ST2EE153J	15K ohm	
R109	VRD-ST2EE102J	1K ohm	
R110	VRD-ST2EE104J	100K ohm	
R111	VRD-ST2EE331J	330 ohm	
R112	VRD-ST2EE103J	10K ohm	
R113	VRD-ST2EE682J	6.8K ohm	
R114	VRD-ST2EE102J	1K ohm	
R115	VRD-ST2EE101J	100 ohm	
R116	VRD-ST2EE564J	560K ohm	
R117	VRD-ST2EE222J	2.2K ohm	
R118	VRD-ST2EE471J	470 ohm	
R119	VRD-ST2EE331J	330 ohm	
R120	VRD-ST2EE472J	4.7K ohm	
R121	VRD-ST2EE153J	15K ohm	
R122	VRD-ST2EE474J	470K ohm	
R123	VRD-ST2EE154J	150K ohm	
R124	VRD-ST2EE562J	5.6K ohm	
R125	VRD-ST2EE473J	47K ohm	
R126	VRD-ST2EE153J	15K ohm	
R127	VRD-ST2EE102J	1K ohm	
R128	VRD-ST2EE470J	47 ohm	
R129, R130	VRD-ST2EE392J	3.9K ohm	
R131, R132	VRD-ST2EE183J	18K ohm	
R133, R134	VRD-ST2EE123J	12K ohm	
R135	VRD-ST2EE332J	3.3K ohm	
R136	VRD-ST2EE562J	5.6K ohm	
R137	VRD-ST2EE331J	330 ohm	
R138	VRD-ST2EE224J	220K ohm	
R139	VRD-ST2EE471J	470 ohm	
R140	VRD-ST2EE103J	10K ohm	
R141	VRD-ST2EE272J	2.7K ohm	
R142	VRD-ST2EE332J	3.3K ohm	
R143	VRD-ST2EE271J	270 ohm	
R144	VRD-ST2EE562J	5.6K ohm	
R145	VRD-ST2EE473J	47K ohm	
R146	VRD-ST2EE823J	82K ohm	
R147	VRD-ST2EE562J	5.6K ohm	
R148	VRD-ST2EE682J	6.8K ohm	
R149	VRD-ST2EE4R7J	4.7 ohm	
R150	VRD-ST2EE222J	2.2K ohm	
R151	VRD-ST2EE221J	220 ohm	
R152	VRD-ST2EE822J	8.2K ohm	
R153	VRD-ST2EE153J	15K ohm	
R154	VRD-ST2EE682J	6.8K ohm	
R155	VRD-ST2EE4R7J	4.7 ohm	
R156	VRD-ST2EE821J	820 ohm	
R157	VRD-ST2EE471J	470 ohm	
R158	VRD-ST2EE4R7J	4.7 ohm	
R159	VRD-ST2EE273J	27K ohm	
R160	VRD-ST2EE272J	2.7K ohm	
R161	VRD-ST2EE121J	120 ohm	
R162	VRD-ST2EE103J	10K ohm	
R163	VRD-ST2EE332J	3.3K ohm	
R164	VRD-ST2EE222J	2.2K ohm	
R165, R166	VRD-ST2EE105J	1 Meg ohm	
R167, R168	VRD-ST2EE391J	390 ohm	
R169, R170	VRD-ST2EE103J	10K ohm	
R171, R172	VRD-ST2EE103J	10K ohm	
R173, R174	VRD-ST2EE104J	100K ohm	
R175, R176	VRD-ST2EE473J	47K ohm	
R177, R178	VRD-ST2EE182J	1.8K ohm	
R179, R180	VRD-ST2EE393J	39K ohm	
R181, R182	VRD-ST2EE153J	15K ohm	
R185, R186	VRD-ST2EE102J	1K ohm	
R187	VRD-SU2EY123J	12K ohm	
R188	VRD-ST2EE102J	1K ohm	
R189	VRD-ST2EE123J	12K ohm	
R190	VRD-ST2EE101J	100 ohm	
R191, R192	VRD-ST2EE123J	12K ohm	
R193	VRD-ST2EE473J	47K ohm	
R194	VRD-ST2EE153J	15K ohm	
R195, R196	VRD-ST2EE103J	10K ohm	
R197	VRC-MT2HG391J	390 ohm, 1/2W, ±5%, Carbon	
R201, R202	VRD-ST2EE823J	82K ohm	
R203, R204	VRD-ST2EE185J	1.8 Meg ohm	
R205, R206	VRD-ST2EE153J	15K ohm	
R207, R208	VRD-ST2EE271J	270 ohm	
R209, R210	VRD-ST2EE123J	12K ohm	
R211, R212	VRD-ST2EE123J	12K ohm	
R213, R214	VRD-ST2EE104J	100K ohm	
R215, R216	VRD-ST2EE105J	1 Meg ohm	
R217, R218	VRD-ST2EE151J	150 ohm	
R219, R220	VRD-ST2EE562J	5.6K ohm	
R221, R222	VRD-ST2EE562J	5.6K ohm	
R223, R224	VRD-ST2EE331J	330 ohm	
R225, R226	VRD-ST2EE102J	1K ohm	
R227, R228	VRD-ST2EE123J	12K ohm	
R301, R302	VRD-ST2EE332J	3.3K ohm	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R303, R304	VRD-ST2EE102J	1K ohm	
R305, R306	VRD-ST2EE224J	220K ohm	
R307, R308	VRD-ST2EE394J	390K ohm	
R309, R310	VRD-ST2EE224J	220K ohm	
R311, R312	VRD-ST2EE121J	120 ohm	
R313, R314	VRD-ST2EE123J	12K ohm	
R315, R316	VRD-ST2EE4R7J	4.7 ohm	
R317, R318	VRD-ST2EE393J	39K ohm	
R319, R320	VRD-ST2EE105J	1 Meg ohm	
R321	VRC-MT2HG182K	1.8K ohm, 1/2W, ±10%, Carbon	
R322, R323	VRS-PT3LB121K	120 ohm, 3W, ±10%, Carbon	
R324	VRD-ST2EE120J	12 ohm	
R325	VRC-MT2HG222K	2.2K ohm, 1/2W, ±10%, Carbon	
R401, R402	VRD-ST2EE101J	100 ohm	
R403, R404	VRD-ST2EE124J	120K ohm	
R405, R406	VRD-ST2EE123J	12K ohm	
R407, R408	VRD-ST2EE824J	820K ohm	
R409, R410	VRD-ST2EE104J	100K ohm	
R411, R412	VRD-ST2EE392J	3.9K ohm	
R413, R414	VRD-ST2EE682J	6.8K ohm	
R415, R416	VRD-ST2EE562J	5.6K ohm	
R417, R418	VRD-ST2EE124J	120K ohm	
R419, R420	VRD-ST2EE473J	47K ohm	
R421, R422	VRD-ST2EE333J	33K ohm	
R423, R424	VRD-ST2EE473J	47K ohm	
R425, R426	VRD-ST2EE682J	6.8K ohm	
R427	VRD-ST2EE123J	12K ohm	
R428	VRD-ST2EE152J	1.5K ohm	
R429, R430	VRD-ST2EE102J	1K ohm	
R431, R432	VRD-ST2EE221J	220 ohm	
R433, R434	VRD-ST2EE183J	18K ohm	
R435	VRC-MT2HG100K	10 ohm, 1/2W, ±10%, Carbon	
R436, R437	VRD-ST2EE104J	100K ohm	
R438	VRG-ST2EA220J	22 ohm, 1/4W, ±5%, Fusible	AB
R439, R440	VRD-ST2EE393J	39K ohm	
R441	VRD-ST2EE822J	8.2K ohm	
R442	VRD-ST2EE563J	56K ohm	
R443	VRD-ST2EE272J	2.7K ohm	
R444	VRD-ST2EE124J	120K ohm	
R445	VRG-ST2EA221J	220 ohm, 1/4W, ±5%, Fusible	AB
R446	VRC-MT2HG182K	1.8K ohm, 1/2W, ±10%, Carbon	
R447, R448	VRD-ST2EE683J	68K ohm	
R449, R450	VRD-ST2EE393J	39K ohm	
R451	VRD-ST2EE472J	4.7K ohm	
R452	VRD-ST2EE1R0J	1 ohm	
R453	VRC-MT2HG560K	56 ohm, 1/2W, ±10%, Carbon	
R501	VRD-ST2EE560J	56 ohm	
R502	VRD-ST2EE682J	6.8K ohm	
R503	VRD-ST2EE333J	33K ohm	
R504	VRD-ST2EE221J	220 ohm	
R505	VRD-ST2EE333J	33K ohm	
R506	VRD-ST2EE102J	1K ohm	
R507	VRD-ST2EE561J	560 ohm	
R508	VRD-ST2EE102J	1K ohm	
R509, R510	VRD-ST2EE224J	220K ohm	
R511	VRD-ST2EE333J	33K ohm	
R513	VRD-ST2EE123J	12K ohm	
R514	VRD-ST2EE472J	4.7K ohm	
R515	VRG-ST2EA101J	100K ohm, 1/4W, ±5%, Fusible	
R516	VRD-ST2EE183J	18K ohm	
R601, R602	VRC-MT2HG271K	270 ohm, 1/2W, ±10%, Carbon	

PLAYER PARTS

001	91Z851163	Pick-up Ass'y	
001-A	91ZCART-717	Cartridge	
001-B	91ZSTY-717	Stylus	
002	91Z893869	Elevation Plate	
003	91Z507947	Washer, 6ϕ	
004	91Z895471	Rest Stand, Ass'y	
005	91Z851164	Pick-up Base (SG-320H)	
	91Z851164-1	Pick-up Base (SG-320HB)	
006	91Z832780	Spring, Elevation Shaft	
007	91Z893583-1	Control Arm, Ass'y	
008	91Z895523	Elevation Shaft	
009	91Z851162	Player Board	
010	91Z895468	Rubber, Leg	
011	91Z895472	Lever, Operation/Speed Selector	
012	91Z890755	Wire Holder	
013	91Z892752	Terminal Strip (5 Pin)	
014	91Z895473	Output Socket, Ass'y (CNS-3)	
015	91Z890765	Washer, Operation Base Shaft	
016	91Z890709-3	Operation Arm, Ass'y	
017	91Z870038	Base, Operation Arm	
018	91Z890767	Base, Seesaw Arm	
019	91Z830151	Seesaw Arm, Ass'y	
020	91Z890334	Switch, Phono Motor (SW4)	
021	91Z890735-1	Insulator, Phono Motor Switch	
022	91Z890994	Switch Arm, Ass'y	
023	91Z894408	Wire Holder	
024	91Z890995	Shaft, Eccentric	
025	91Z813152	"E" Stop Ring (3ϕ)	
026	91Z891707	Return Gear, Ass'y	
027	91Z890620	Stud, Gear Stopper	
028	91Z890619	Shaft, Eccentric	
029	91Z890618	Arm, Gear Stopper	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
030	91Z890628	Spring, Gear Stopper	
031	91Z891190	Kick Lever	
032	91Z891191	Spring, Kick Lever	
033	91Z890322-1	Shaft, Kick Lever	
034	91Z813153	"E" Stop Ring (4ϕ)	
035	91Z890684	Switch Lever, Ass'y	
036	91Z891849	Terminal Strip (6 Pin)	
037	91Z890542	Tube (1ϕ x 20ℓ)	
038	91Z890836-2	Capacitor, .047MFD, 1500V, ±20%, Oil (C701)	
039	91Z890835	Tube (16ϕ x 40ℓ)	
040	91Z894418	Phono Motor Connector, Ass'y (CNS-4)	
041	91Z891828-4	Tube (5.8ϕ x 180ℓ)	
042	91Z890065-2	Shaft, Operation Lever	
043	91Z890792	Operation Lever Arm	
044	91Z892086-8	Spring, Operation Lever Arm	
045	91Z890322-2	Shaft, Switch Arm	
046	91Z892331	Spring, Switch Arm	
047	91Z890876	EP Adaptor	
048	91Z871087	Turntable Sheet	
049	91Z703549-1	Turntable	
050	91Z895469	Fuse Cover	
051	91Z830310	Bearing Ass'y, Turntable	
052	91Z631287	Motor Ass'y with Pulley and Idler	
052-A	91ZMOTOR-723	Motor (M1)	
052-B	91ZPULLEY-704	Pulley (50Hz)	
052-C	91ZI-704	Idler	

TAPE DECK PARTS LIST

101	JKNBR0111AFSA	Key, REC/REW/PLAY/FF/STOP/PAUSE	AC
102	LANGF0401AFFW	Bracket, P.W. Board	
103	LANGF0402AFFW	Bracket, Main Chassis	
104	LANGF0394AFZZ	Bracket, Function Key, Shaft	
105	LANGT0547AFFW	Bracket, Flywheel	
106	LANGT0614AFZZ	Bracket, Motor	
107	LANGT0615AFZZ	Bracket, Plunger	
108	LANGT0617AFZZ	Bracket,Ass'y, Micro Switch (SW10, 11)	
109	LBSHS0001AG00	Cushion Rubber, Motor	
110	LCHSM0262AFZZ	Main Chassis Ass'y	
111	LCHSS0115AFFD	Sub-chassis	
112	LDAIH0051AFZZ	Block, Head Mounting	
113	LSLVM0058AFFW	Sleeve, Lock Lever Release Lever	
114	LSLVM0061AFFW	Sleeve, APSS Function Lever	
115	LSLVM0062AFFW	Sleeve, APSS Function Lever	
116	LSTPF0052AFFW	Retainer, Function Key Shaft	
117	LX-BZ0108AGZZ	Screw, Flywheel Thrust Adjust	
118	LX-BZ0219AFFD	Screw, Motor Retaining	
119	LX-BZ0229AFFD	Screw, Micro Switch (SW10, 11) Retaining	
120	LX-WZ9051AFZZ	Washer, Capstan Oil Cut	
121	MLEVF0514AFFW	Lever, Take-up Idler Release	
122	MLEVF0634AFFD	Lever, Lock Lever Release	
123	MLEVF0635AFZZ	Lever, Solenoid	
124	MLEVF0637AFFD	Lever, Sub-chassis Return	
125	MLEVF0638AFFW	Lever, APSS Safety	
126	MLEVF0640AFFN	Lever, Playback/Record Key Lock	
127	MLEVF0641AFFN	Lever, Fast Forward/Rewind Key Lock	
128	MLEVF0710AFZZ	Lever Ass'y, APSS Function	
129	MLEVF0712AFZZ	Lever Ass'y, Muting Switch	
130	MLEVF0713AFZZ	Lever Ass'y, Brake	
131	MLEVF0714AFZZ	Lever Ass'y, Pause	
132	MLEVF0715AFZZ	Lever, Fast Forward	
133	MLEVF0720AFZZ	Lever, Record	
134	MLEVP0031AFZZ	Lever, Take-up Idler	
135	MLEVP0080AFZZ	Lever, Record Safety	
136	MLEVP0095AG00	Lever, Eject	
137	MSPRC0031AGMN	Spring, Record/Playback Head Azimuth	
138	MSPRC0120AFFJ	Spring, Muting Switch (SW7)	
139	MSPRC0123AFFJ	Spring, Solenoid	
140	MSPRD0129AFFJ	Spring, Pressure Roller	
141	MSPRP0131AFFW	Spring (Plate type), Cassette Hold	
142	MSPRP0136AFFW	Spring (Plate type), Sub-chassis Retaining	
143	MSPRT0253AGFJ	Spring, Record Lever	
144	MSPRT0254AGFJ	Spring, Stop/Eject Key	
145	MSPRT0258AGFJ	Spring, Eject Lever	
146	MSPRT0259AGFJ	Spring, Lock Lever	
147	MSPRT0266AGFJ	Spring, Play/Fast Forward/Rewind/Pause Key	
148	MSPRT0400AFFJ	Spring, Muting Switch Lever	
149	MSPRT0401AFFJ	Spring, Brake/APSS Function Lever	
150	MSPRT0402AFFJ	Spring, Fast Forward/Rewind Roller	
151	MSPRT0403AFFJ	Spring, APSS Safety Lever	
152	MSPRT0404AFFJ	Spring, Sub-chassis Return	
153	MSPRT0405AFFJ	Spring, Fast Forward/Rewind Roller	
154	MSPRT0406AFFJ	Spring, Pause Lever	
155	MSPRT0408AFFJ	Spring, Take-up Idler	
156	MSPRT0453AFFJ	Spring, Record Safety Lever	
157	MSPRT0478AFFJ	Spring, Fast Forward/Rewind Roller	
158	NBALS0004AGFJ	Ball, 3ϕ	
159	NBLTH0056AFZZ	Belt, Drive	AD
160	NBRGC0053AFZZ	Bearing, Capstan	
161	NDAIR0114AFSA	Turntable, Take-up	
162	NDAIR0115AFSA	Turntable, Supply	
163	NFLYC0063AFZZ	Flywheel	AL
164	NIDR-0021AGZZ	Idler, Take-up	
165	NPLYR0050AFZZ	Pulley, Take-up	
166	NROLV0006AFZZ	Roller Ass'y, Fast Forward/Rewind	AH
167	NROLX0003AFZZ	Gear, Rewind	AB
168	NROLY0001AFZZ	Pressure Roller Ass'y	AG
169	NSFTZ0062AFFP	Shaft, Function Key	
170	PCOVW9107AFZZ	Insulator, Tape Selector Switch (SW11)	
171	PCUSG0061AF00	Cushion Rubber, Sub-chassis	AB
172	PCUSS0077AFZZ	Cushion, Lock Lever	
173	PFLT-0284AFZZ	Rubber, Lock Lever	
174	PGIDS0006AGFW	Pivot, Fast Forward Lever	
175	PGUMM0114AF00	Rubber, APSS Function Lever	
176	PSHEF0112AF00	Cushion, Main Chassis	
177	QPWBF0610AFZZ	P.W. Board, Mechanism	
178	RHEDA0059AFZZ	Head, Erase	AK
179	RHEDH0059AFZZ	Head, Record/Playback	AU

PARTS LIST

REF. No.	PART NO.	DESCRIPTION	CODE
180	KCOUB0065AFZZ	Counter with Full Auto Stop Senser, Ass'y	
181	NBLTK0115AFZZ	Belt, Counter	AC
		MISCELLANEOUS	
CNP1	QCNCM0604SGZZ	Connecting Plug, 6 Pin	AD
CNP2	QCNCM053EAFZZ	Connecting Plug, 5 Pin	
CNP3	QCNCM094CAFZZ	Connecting Plug, 3 Pin	AD
CNP4	QCNCW101EAFZZ	Connecting Plug, 5 Pin	AC
CNP5	QCNCM0806SGZZ	Connecting Plug, 8 Pin	AE
CNP6	QCNCM123QAFZZ	Connecting Plug, 15 Pin	AF
CNP7	Not Available Part of 180	Connecting Plug, 3 Pin	
CNS1	QCNCW0603SGZZ	Connecting Socket, 6 Pin	AB
CNS2	QCNCW053EAFZZ	Connecting Socket, 5 Pin	
CNS3	Not Available	Player Parts 014	
CNS4	Not Available	Player Parts 040	
CNS5	QCNCW0805SGZZ	Connecting Socket, 8 Pin	AC
CNS6	QCNCW141QAFZZ	Connecting Socket, 15 Pin	AC
CNS7	QCNCW086CAFZZ	Connecting Socket, 3 Pin	AB
F301	QFS-C122CAGNI	Fuse, 1.25AT	AE
F302	QFS-C202CAGNI	Fuse, 2AT	AE
F303	QFS-C102CAGNI	Fuse, 1AT	AE
J601, J602	QJAKE0056AFZZ	Jack, Microphone	AG
J603	QJAKJ0001SGZZ	Jack, Headphone	AG
ME1	RMTRE0064AFZZ	Meter, Tuning	AS
M1	Not Available	Player Parts 052-A	
M2	RMOTM0069AFZZ	Motor for Tape Deck	AX
PL1	RLMPM0026AGZZ	Lamp, Stereo Indicator	AE
PL2	RLMPM0026AGZZ	Lamp, Meter Illumination	AE
PL3, PL4, PL5, PL6	RLMPM0067AFZZ	Lamp, Dial Illumination	AE
PL7	RLMPM0068AFZZ	Lamp, Record Indicator	AD
PL8	RLMPM0068AFZZ	Lamp, CrO_2 Indicator	AD
PL9	RLMPM0068AFZZ	Lamp, REV. APSS Indicator	AD
PL10	RLMPM0068AFZZ	Lamp, FWD. APSS Indicator	AD
PTH301	RH-QX1001AFZZ	Posistor, I.C. Protector	AF
SOL501	RPLU-0060AFZZ	Solenoid for Auto Stop	AP
SO101	QSOCD2259AFZZ	Socket, FM Antenna	AD
SO102	QSOCD2260AFZZ	Socket, AM Antenna	AE
SO103	QSOCD2557AFZZ	Socket,(DIN), AUX	AF
SO301, SO302	QSOCD2258AFZZ	Socket, Speaker	AE
SO601	QSOCE0410AGZZ	Voltage Selector	AH
SW1 (1～8)	QSW-P0146AFZZ	Switch, Push Switch Assembly SW1-1: FM SW1-2: SW SW1-3: MW SW1-4: LW SW1-5: PHONO SW1-6: TAPE SW1-7: AUX. SW1-8: MONO.	AW
SW2	QSW-S0192AFZZ	Switch, Record Playback	AG
SW3	QSW-S0191AFZZ	Switch, R.I.F.	AE
SW4	Not Available	Player Parts 020	
SW5	QSW-P0119AFZZ	Switch, Power	AM
SW6	QSW-S0185AFZZ	Switch, Transport Switch A	AG
SW7	QSW-S0174AFZZ	Switch, Muting	AG
SW8	QSW-S0188AFZZ	Switch, APSS	AE
SW9	QSW-S0188AFZZ	Switch, Transport Switch B	AE
SW10	QSW-M0058AFZZ	Switch, Transport Switch C	AG
SW11	QSW-M0057AFZZ	Switch, Auto Tape Selector	AG
201	GCABA1440AFSA	Cabinet, Top (SG-320H)	BF
	GCABA1440AFSB	Cabinet, Top (SG-320HB)	
202	GCABB1440AFSA	Cabinet, Bottom	BB
203	GCOVA1084AFSA	Dust Cover	BC
204	GCOVA1085AFSA	Cover, Hinge (Right)	AC
205	GCOVA1086AFSA	Cover, Hinge (Left)	AC
206	GDAI-1002AFZZ	Base, Hinge (Right)	AD
207	GDAI-1003AFZZ	Base, Hinge (Left)	AD
208	GFTAC1070AFSA	Holder, Cassette (SG-320H)	
	GFTAC1070AFSB	Holder, Cassette (SG-320HB)	
209	GFTAU3066AFZZ	Cover, Cabinet Bottom	AN
210	HBDGB3001CESA	Indication Metal, SHARP	AD
211	HDALP0368AFSA	Dial Scale	AQ
212	HDAP-0170AFSA	Plate, Dial Scale	AM
213	HDECB0018AGS	Mirror	AA
214	HDECQ0064AFSA	Decoration Cover (Orange), REC/FM STEREO	AB
215	HDECQ0064AFSB	Decoration Cover (Green), CrO_2	AB
216	HDECQ0065AFSA	Decoration Cover (Green), APSS (REV. FWD)	AC
217	HINDM1150AFSA	Decoration Plate, Model (SG-320H)	AC
	HINDM1176AFSA	Decoration Plate, Model (SG-320HB)	AC
218	HSSND0232AFSA	Pointer, Dial Scale	AD
219	JKNBN0336AFSA	Knob, Tuning	AE
220	JKNBP0075AFSA	Knob, BASS/TREBLE/ BALANCE/VOLUME	AC
221	JKNBZ0132AFSA	Knob, Push Switch	AD
222	LANGA0029AGZZ	Bracket, Cassette Holder Retaining	AA
223	LANGK0180AFZZ	Bracket, Meter	AH
224	LANGK0181AFZZ	Plate, Hinge	AB
225	LANGQ0517AFZZ	Bracket, Record P.W. Board Retaining (Right)	AB
226	LANGQ0518AFZZ	Bracket, Record P.W. Board Retaining (Left)	AC
227	LANGR0416AFZZ	Bracket, Power Transformer	AK
228	LANGR0417AFZZ	Bracket, Volume	AC
229	LANGT0620AFZZ	Bracket, Dial Cord Pulley	AB
230	LANGT0621AFZZ	Bracket, Dial Cord Pulley	AB
231	LBSHC0004AGZZ	Bushing, AC Cord (VDE, SEMKO)	AC
	LBSHC0007AFZZ	Bushing, AC Cord (SEV, A-CLUB)	AB
232	LBSHZ0001AF00	Bushing, FM ST. IND. Lamp	AA
233	LHLDC1051AFZZ	Holder, Bar Antenna	AD
234	LHLDP3057AFZZ	Bracket, Dial Scale (Right)	AD
235	LHLDP3058AFZZ	Bracket, Dial Scale (Left)	AE
236	LHLDW1027AGZZ	Holder, Wire	AA
237	LHLDW1067AFZZ	Band, Wire (60mm)	AA
238	LHLDW1068AFZZ	Band, Wire (100mm)	AA
239	LHLDW9003CEZZ	Holder, Wire	AA
240	LHLDZ3054AFZZ	Holder, Hinge	AE
241	LPLTM0100AFZZ	Plate, Hinge Holder Retaining	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
242	LPLTM0102AFZZ	Bracket, Push Switch	AA
243	LX-BZ0244AFFF	Shaft, Dial Cord Pulley	AA
244	LX-NZ0108AFFN	Nut, Headphone Jack	AB
245	MARMP0003AFZZ	Arm, Dust Cover (Right)	AD
246	MARMP0004AFZZ	Arm, Dust Cover (Left)	AD
247	MLEVF0614AFZZ	Lever, Eject	AB
248	MLEVF0717AFZZ	Lever, Record (Refer to Figure 34)	AC
249	MLEVP0025AG00	Lock, Cassette Holder	AB
250	MRODM0057AFZZ	Rod, Record Lever (Refer to Figure 34)	
251	MSPRD0158AFFJ	Spring, Hinge (Right)	AB
252	MSPRD0159AFFJ	Spring, Hinge (Left)	AB
253	MSPRP0129AFFW	Spring (Plate type), Cassette Holder	AB
254	MSPRT0304AFFJ	Spring, Dial Cord Stringing	AA
255	MSPRT0388AFFJ	Spring, Eject Lever	AA
256	MSPRT0410AFFJ	Spring, Cassette Holder	AB
257	NDRM-0002SGZZ	Drum, Dial Cord	AH
258	NPLYB0054AF00	Pulley, Dial Cord (Refer to	AB
259	NPLYB0055AF08	Pulley, Dial Cord (Figure 5	AA
260	NSFTD0175AFZZ	Shaft, Tuning	AG
261	PCOVU8106AFZZ	Cover, Lamp (APSS, REC, CrO_2)	AD
262	PCOVU8107AFZZ	Cover, Dial Lamp	AB
263	PCUSF0004AF00	Cushion, Push Switch Knob	AA
264	PFLT-0277AFZZ	Felt, Leg	AB
265	PFLT-0309AF00	Felt, Volume Lever	AB
266	PGIDH0051AFZZ	Holder, Eject Lever	AA
267	PGUMM0041AG00	Holder, Meter	AC
268	PGUMM0061AG00	Cushion Rubber, Cabinet Top	AB
269	PGUMM0107AF00	Cushion Rubber, Cassette Holder	AB
270	PRDAR0143AFZZ	Heatsink	AN
271	PREFL0062AFZZ	Bracket, Dial Lamp	
272	PSLDC3060AFZZ	Shield, Variable Capacitor	AB
273	PSLDC3061AFZZ	Shield, Variable Capacitor	AA
274	PSLDC3063AFZZ	Shield, Volume P.W. Board	AB
275	PSLDM7106AFZZ	Shield, Cabinet Bottom	AB
276	PSPA10120AFZZ	Cushion, Cabinet Top	
277	PSTPK0005AGZZ	Stopper, Bar Antenna Coil	
278	QLUGL0250AFZZ	Terminal Strip (2 Pin)	AU
279	QLUGL0451AFZZ	Terminal Strip (4 Pin)	AD
280	QFSHD1001AGZZ	Holder, Fuse	AB
	LBSHZ0053AFZZ	Bushing, Indicator Lamp	
	LHLDW9002CEZZ	Holder, Wire	
	LX-BZ0230AFFD	Screw, Turntabe Retaining	AA
	PSPAZ0066AFZZ	Spacer, Turntable Retaining	AC
	QACCN0001AGZZ	Mains Supply Cord (SEMKO)	AQ
	QACCS9001SE00	Mains Supply Cord (SEV)	AG
	QACCV0001AGZZ	Mains Supply Cord (VDE) (KEMA)	AP
	QACCZ0002TA0F	Mains Supply Cord (A-CLUB)	AF
	QANTW0054AFZZ	FM Antenna	AL
	QPLGA0205AGZZ	Plug, Mains Supply Cord (SEV)	AK
	QPWBF0606AFZZ	P.W. Board, Tuner/Mic	
	QPWBF0607AFZZ	P.W. Board, Tone	
	QPWBF0608AFZZ	P.W. Board, Power/Fuse	
	QPWBF0609AFZZ	P.W. Board, Tape Rec/Lamp	
	QPWBF0610AFZZ	P.W. Board, APSS	
	NPLYP0052AFH6	Pulley, Player (60Hz)	AK
	NPLYC0101AFFD	Shaft, Pulley	AA

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